

Appendix G

Utilities Study

Prepared by BJ Engineering and Surveying, Inc.

**CITY OF CALEXICO
111 CALEXICO PLACE
SUB-AREA
UTILITIES STUDY**

Prepared for:

CITY OF CALEXICO
608 Heber Avenue
Calexico, CA. 92231

April 2008.



Prepared by:

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1.0 Introduction

1.1 Purpose

The purpose of this report is to provide water, wastewater and storm water analyses in support of the tentative map approval process for the project described as 111 Callexico Place. These studies are in response to a request made by the City of Callexico to analyze existing facilities that are in place to serve this new project. Information was taken from the Jasper Corridor Sub-Area Master Plan by PBS&J, February, 2007; and from the Service Area Plan, prepared by Webb & Associates, May, 2006.

The development of 111 Callexico Place will take place in five phases, which are explained in Table 1-A. The utilities are to be constructed in three phases as shown in Figure 1 and Table 1-B.

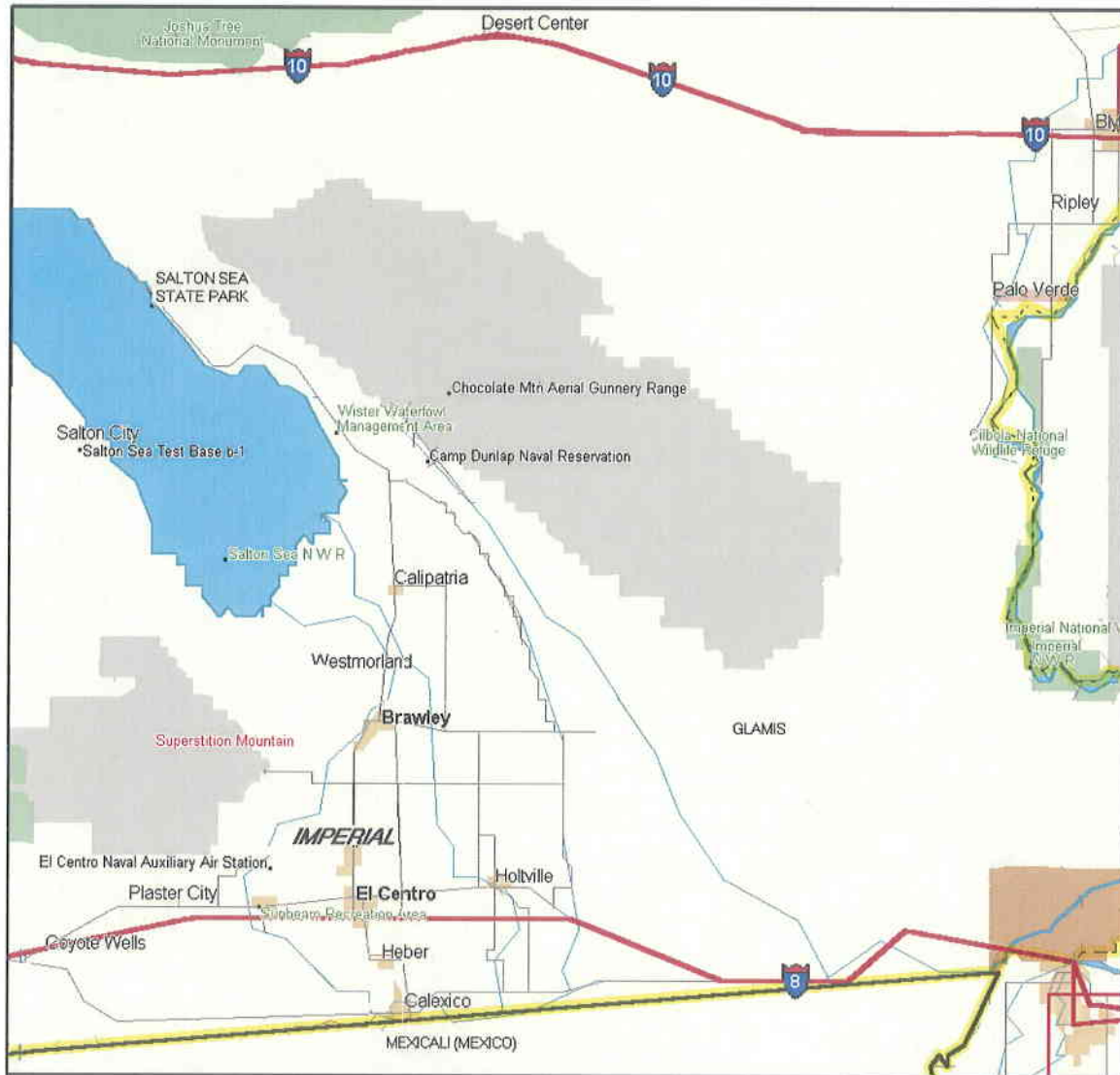
Phase I includes the casino complex resort and will generate a greater percentage of demand than Phase II and III. The demand produced by Phase I will determine our final conclusions for Phases II and III.

1.2 Background

Callexico was incorporated in 1908, has a population of 37,000, and encompasses approximately 5,000 acres. The city is located near the southeast corner of California; 50 miles west of Yuma, AZ; 200 miles southeast of Los Angeles; and 120 miles east of San Diego, CA. The topography of Callexico is flat and like most areas of the Imperial Valley has an elevation very close to sea level. Callexico is situated on the border of Mexicali, Baja California, Mexico with whom it shares a strong commercial and cultural bond.

Mexicali's population is close to one million and creates a significant impact on Callexico's economy.

Vicinity Map



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1.3 111 Calexico Place Development

The 226.44± acre development is located northwest of the City of Calexico. The site is also situated at the southwest quadrant of the Jasper Road and Highway 111 intersection and bound on the south and west by the Central Main and Dogwood Canals.

1.4 Jasper Corridor Development

The Jasper Road Corridor includes eight developments consisting of single- and multi-family homes; parks and open space; school sites; commercial and mixed use areas.

Los Lagos Planned Community - 500± acres.

Esmeralda Estates - 80± acres.

Estrella Subdivision - 159± acres.

Las Ventanas - 304± acres.

Rancho Diamante - 1,042± acres.

Palazzo - 155± acres.

Santa Fe - 170± acres.

Mega Park - 150± acres.

Santa Fe, Scaroni, and 111 Calexico Place were not included in the Jasper Corridor Master Plan.

The total average water demand for Jasper Corridor, Scaroni and Santa Fe is 7.6 MGD resulting in a maximum daily demand of 11.5 MGD. This quantity of water supply is almost equal to the current water treatment plant's capacity of 12 MGD. Our study shows the exclusive impact that 111 Calexico Place will have on the existing system.

Table 1-A Development Phases – Casino Resort Complex and Hotel

Phase	Acreage	Type of Development	Approximate Timing
1	60.3 acres	Calexico Casino Resort Complex and Hotel Casino Resort Complex – 459,621 sf (includes a 93,880 sf Casino) Hotel – 125,300 sf (200 rooms) Fire/ Police Station	Year 2008 to 2012 (4 years)
2	56.8 acres	Commercial Highway Development Retail – 356,000 sf	Year 2008 to 2010 (3 years)
3	17.9 acres	Restaurant – 104,000 sf Restaurant/retail – 55,000 sf Hotel – 200 rooms Office – 120,000 sf Retail – 6,000 sf	Year 2010 to 2012 (3 years)
Commercial Highway Development			
4	22.5 acres	Office – 275,000 sf	Year 2012 to 2014 (2 years)
5	27.6 acres	Office Tech – 340,000 sf	Year 2014 to 2018 (4 years)
Detention	7.9 acres	Detention Basin	
Public Roads	33.44 acres	N/A	
Total	226.44 acres		

Source: Halliwood Calexico Investments, LLC, 2007.

Table 1- B Utilities Phasing for 111 Calexico Place Development.

Phase I	2008 to 2012 – Development Phase 1, 2 and 3 (Casino Resort Complex, Commercial Highway, Retail, Offices, Restaurants).
Phase II	2012 to 2014 – Development Phase 4 (Commercial Highway, Offices).
Phase III	2014 to 2018 - Development Phase 5 (Commercial Highway, Office Tech).

PHASING MAP FOR THE 111 CALEXICO PLACE DEVELOPMENT

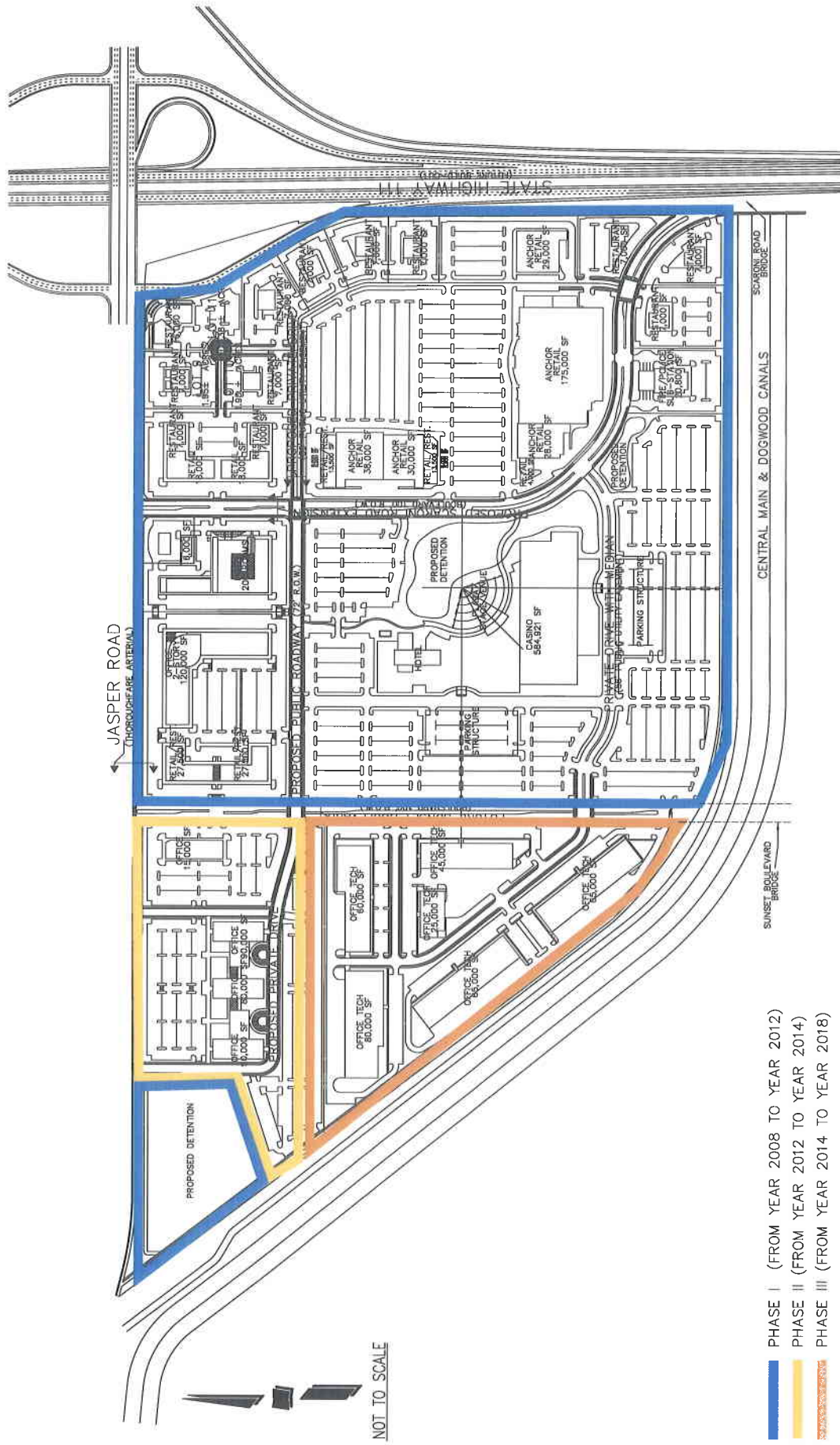


FIGURE 1

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2.0 Water

2.1 Introduction

This section will analyze the water demands for the Jasper Corridor development. Additionally, an analysis will be provided for the demand of 111 Callexico Place. A preliminary study will include a hydraulic analysis to recommend adequate fire flows, distribution and pipe sizing.

2.2 Existing Facilities

The City of Callexico obtains raw water from the Imperial Irrigation District. The raw water is diverted from the Colorado River through the Imperial Dam and is conveyed through the All American Canal to a 25 million gallon raw water reservoir. The water is then pumped to the water treatment plant located near 5th Street and Pierce Avenue. The plant has a treatment capacity of 14 million gallons per day.

The total storage capacity of water for the City is 33 million gallons (25 million raw and 8 million treated). The existing average daily demand is approximately 6.7 million gallons.

The main 30" distribution line runs north along Cesar Chavez Boulevard and up to Highway 98. There are a total of five pumps, one pump has a 2000 GPM and the other four have a 4,000 GPM to transfer potable water at a rate of approximately 62 psi.

2.3 Service Area Plan

According to the 2006 Service Area Plan, Callexico's current maximum daily demand is 10 MGD and is processed through the existing 14 MGD capacity water treatment plant. However, the City does not meet the fire flow requirements in some areas due to inadequate pipelines.

The Service Area Plan recommends the improvement of water facilities, construction of new waterlines as well as the replacement of existing waterlines to provide sufficient flow and pressure to the entire city. This plan is phased in three stages.

Summary of recommendations:

Phase I (within 5 years):

- Install a 30" pipeline along Bowker Road between Cole Road and LaVigne Road.
- Install a 24" pipeline along Bowker Road between LaVigne Road and Anza Road
- Replacement of small diameter pipes.
- Construction of the proposed 6 million gallon eastside reservoir booster station.
- Installation of new raw water 4,000 GPM transfer pump to increase total raw water pumping capacity to 20 MGD.
- Upgrade the water treatment plant from 14 MGD to stet MGD.

Phase II (within 10 years):

- Install a 24" pipeline along Bowker Road between Cole Road and Jasper Road
- Install a 24" pipeline along Jasper Road between Meadows and Bowker Road
- Construct second 6 MG reservoir at east side reservoir
- Increase water storage adding a new storage of 25 MG

Phase III (within 20 years)

- Install a 24" pipeline along Jasper Road between Meadows Road and Sunset Blvd.*
- Install a 24" pipeline along Sunset Blvd. between Jasper Road and Cole Road.*
- Construct west side Reservoir and Pump Station near the intersection of Cole Road and Dogwood Road (capacity and location to be determined upon development)

**These will need to be advanced for the 111 Calexico Place Project.*

2.4 Planned Water System

2.4.1 Design Criteria

The following information was taken from the Calexico Service Area Plan and should be considered as criteria for the water services design:

1. Average Daily Demand
 2. Maximum Daily Demand plus fire flow
 3. Peak Hour Demand
- Average daily commercial consumption – 2,000 gallons per day (GPD)/acre
 - Average daily park consumption – 16,400 GPD/park
 - Maximum daily demand = 1.5 x Average daily demand
 - Peak hour demand = 1.8 x Maximum daily demand
 - Residual pressure is 20 psi – system wide during all conditions
 - Fire flow minimum for commercial zone = 2,500 GPM
 - Pump station capacity is designed to meet peak hour demand. The use of 75 percent of the pump capacity to meet peak hour demand is acceptable
 - The treatment plant capacity is designed to meet maximum daily flow demands - using 80 percent of the plant capacity to meet maximum daily demand.

2.4.2 Water Demand

The total average daily demand for 111 Calexico Place is 0.24 MGD with a maximum daily demand of 0.36 MGD.

The Jasper Corridor Master Plan notes the average daily demand is 6.6 MGD. The average daily demands for the Scaroni and Santa Fe developments were not part of the plan, but are estimated to be as follows:

- Scaroni Development – 265,000 GPD
- Santa Fe Development – 731,000 GPD

Imperial Irrigation District will be providing raw water for landscape within 111 Calexico Place development.

See Table 2-A, 2-B, and 2-C

Table 2-A

CASINO RESORT COMPLEX ESTIMATED WATER FLOWS TABLE									
WITHIN PHASE I - YEAR 2008 TO 2012 (4 YEARS)									
AREA 60.3 ACRES									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
GAMING AREA	2.16 AC	1000	GAMBLING	15	GALLONS/GAMBLERS/DAY	15,000	0.0150	10.42	
RESTAURANT & LOUNGES	1.26 AC	700	MEAL	10	GALLONS/MEAL/DAY	7,000	0.0070	4.86	
RETAIL	0.18 AC	0.18	AC	2000	GALLONS/ACRE/DAY	360	0.0004	0.25	
MEETING & ASSEMBLY SPACE	1.06 AC	500	CAPITA	10	GALLONS/CAPITA/DAY	5,000	0.0050	3.47	
ENTERTAINMENT & RECREATION	0.89 AC	420	CAPITA	8	GALLONS/CAPITA/DAY	3,360	0.0034	2.33	
BACK OF HOUSE AREA (FACILITY SUPPORT & EMPLOYEES FACILITIES)	5.00 AC	4.43	AC	1500	GALLONS/CAPITA/DAY	6,645	0.0066	4.61	
	10.55 AC					37,365	0.0374	25.95	

Table 2-A includes the water demand for the Casino Resort Complex only.

Table 2-B

111 CALEXICO PLACE ESTIMATED WATER FLOWS TABLE									
P H A S E I									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
CASINO RESORT COMPLEX & HOTEL (60.3 ACRES)	YEAR 2008-2012 (4 YEARS)								
CASINO RESORT COMPLEX	10.66 AC					37,365	0.0374	25.96	
HOTEL (200 ROOMS)	200 ROOMS	280	GUEST	100	GALLONS/GUEST/DAY	28,000	0.0280	19.44	
COMMERCIAL HIGHWAY DEVELOPMENT (1=56.8 ACRES, 2=17.9 ACRES)	1.- YEAR 2008 TO 2010 (3 YEARS)								
	2.-YEAR 2010 TO 2012 (3 YEARS)								
1 RETAIL	8.17 AC	8.17	ACRE	2000	GALLONS/ACRE/DAY	16,340	0.0163	11.36	
RESTAURANT	2.39 AC	4900	MEAL	10	GALLON/MEAL/DAY	49,000	0.0490	34.03	
2 RESTAURANT/RETAIL	1.26 AC	3132	MEAL	10	GALLON/ACRE/DAY	31,320	0.0313	21.76	
HOTEL	200 ROOMS	280	GUEST	100	GALLON/GUEST/DAY	28,000	0.0280	19.44	
OFFICE	2.76 AC	1500	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	15,000	0.0150	10.42	
RETAIL	0.14 AC	0.14	ACRE	2000	GALLON/MEAL/DAY	280	0.0003	0.19	
						205,305	0.2053	142.57	
LANDSCAPE IRRIGATION (IID)	13.87 AC	13.87	ACRE	5000	GALLON/ACRE/DAY	69,350	0.0694	48.16	
P H A S E II									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
COMMERCIAL HIGHWAY DEVELOPMENT (22.5 ACRES)	YEAR 2012 TO 2014 (2 YEARS)								
OFFICE	6.31 ACRES	1400	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	14,000	0.0140	9.72	
						14,000	0.0140	9.72	
LANDSCAPE IRRIGATION (IID)	2.25 ACRES	2.25	ACRE	5000	GALLON/ACRE/DAY	11,250	0.0113	7.81	
P H A S E III									
LAND USE	QUANTITY	UNITS	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
COMMERCIAL HIGHWAY DEVELOPMENT (27.6 ACRES)	YEAR 2014 TO 2018 (2 YEARS)								
OFFICE TECH	7.81 AC	1800	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	18,000	0.0180	12.50	
						18,000	0.0180	12.50	
LANDSCAPE IRRIGATION (IID)	2.92 AC	2.92	ACRE	5000	GALLON/ACRE/DAY	14,600	0.0146	10.14	

Table 2-C

AVERAGE DAILY DEMAND = (ADD)
MAXIMUM DAILY DEMAND (MDD) = (1.5 X ADD)
PEAK HOURLY DEMAND (PHD) = (1.8 X MDD)

PHASE I	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAILY DEMAND =	205,305	0.2053	142.57
MAXIMUM DAILY DEMAND =	307,958	0.3080	213.86
PEAK HOURLY DEMAND =	554,324	0.5543	384.95

PHASE II	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAILY DEMAND =	14,000	0.0140	9.72
MAXIMUM DAILY DEMAND =	21,000	0.0210	14.58
PEAK HOURLY DEMAND =	37,800	0.0378	26.25

PHASE III	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAILY DEMAND =	18,000	0.0180	12.50
MAXIMUM DAILY DEMAND =	27,000	0.0270	18.75
PEAK HOURLY DEMAND =	48,600	0.0486	33.75

TOTAL CITY WATER	PHASE I GALLONS / MINUTE	PHASE II GALLONS / MINUTE	PHASE III GALLONS / MINUTE	TOTAL GALLONS / MINUTE
AVERAGE DAILY DEMAND	142.57	9.72	12.50	164.80
MAXIMUM DAILY DEMAND	213.86	14.58	18.75	247.19
PEAK HOURLY DEMAND	384.95	26.25	33.75	444.95

TOTAL LANDSCAPE IRRIGATION (IID)	PHASE I GALLONS / MINUTE	PHASE II GALLONS / MINUTE	PHASE III GALLONS / MINUTE	TOTAL GALLONS / MINUTE
AVERAGE DAILY DEMAND	48.16	7.81	10.14	66.11

NOTES:

1.- HOTEL ROOMS AVERAGE 70% OCCUPANCY (2 PERSONS / ROOM).

2.- IMPERIAL IRRIGATION DISTRICT WILL BE SUPPLYING RAW WATER FOR LANDSCAPE IRRIGATION.

2.4.3 Hydraulic Analysis

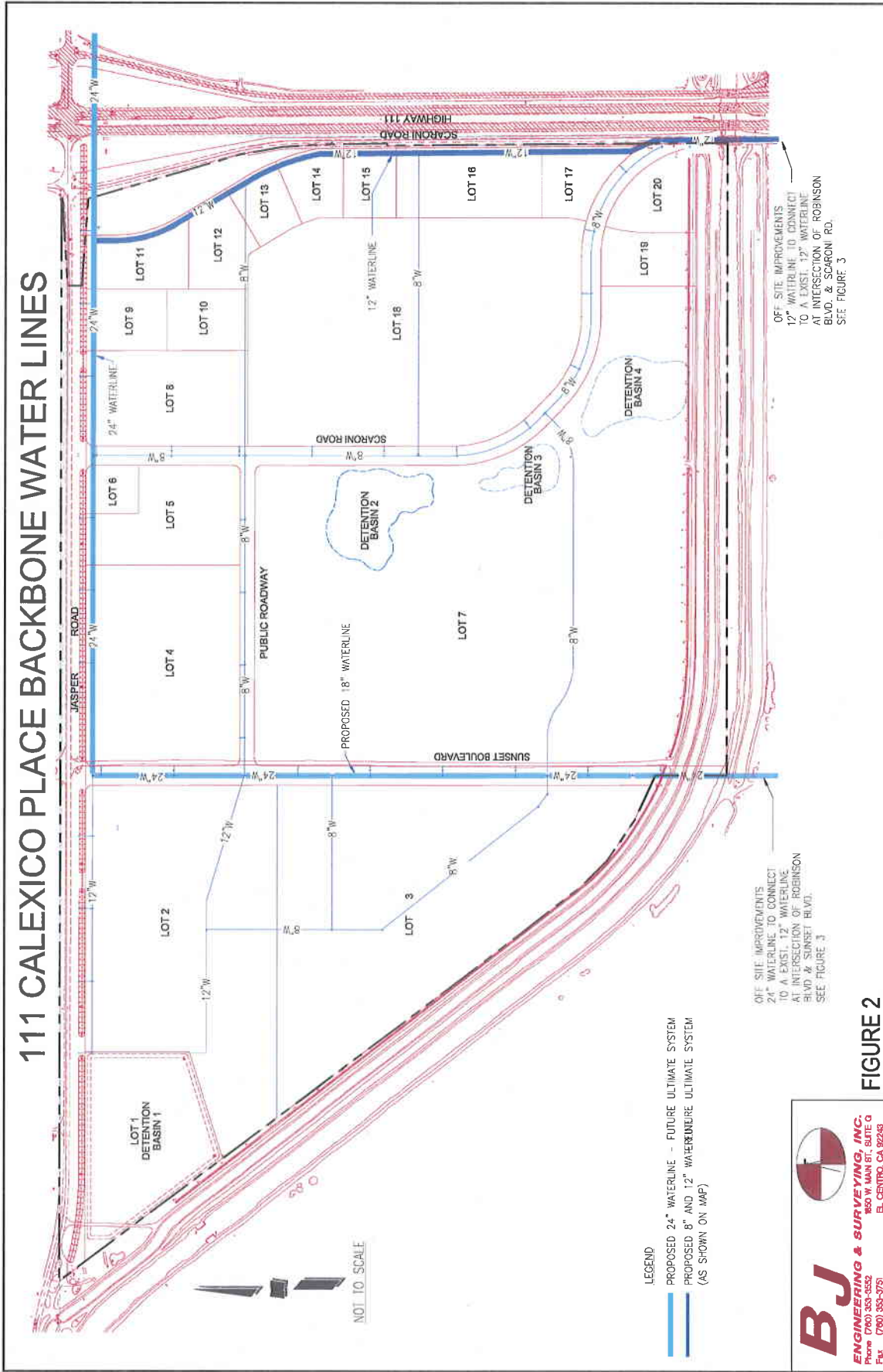
Hydraulic analysis was performed with the existing infrastructure and only the 111 Calexico Place project's projected water demands. No other new developments were included.

Software used: Haesthad methods from Bentley Systems, Inc. for water modeling, WaterCad 7.0

The basis of modeling is predicated on a test performed June 1, 2007, by the Calexico Fire Department. Pressure and fire flow tests on fire hydrants located at the intersections of Robinson Boulevard and Scaroni Road; and of Robinson and Enterprise Boulevards. The results were 62 psi static pressure, 44 psi residual pressure and a flow of 1,063 GPM.

See Figure 2, Figure 3 and Tables 2-D-1 through 2-D-13

111 CALEXICO PLACE BACKBONE WATER LINES



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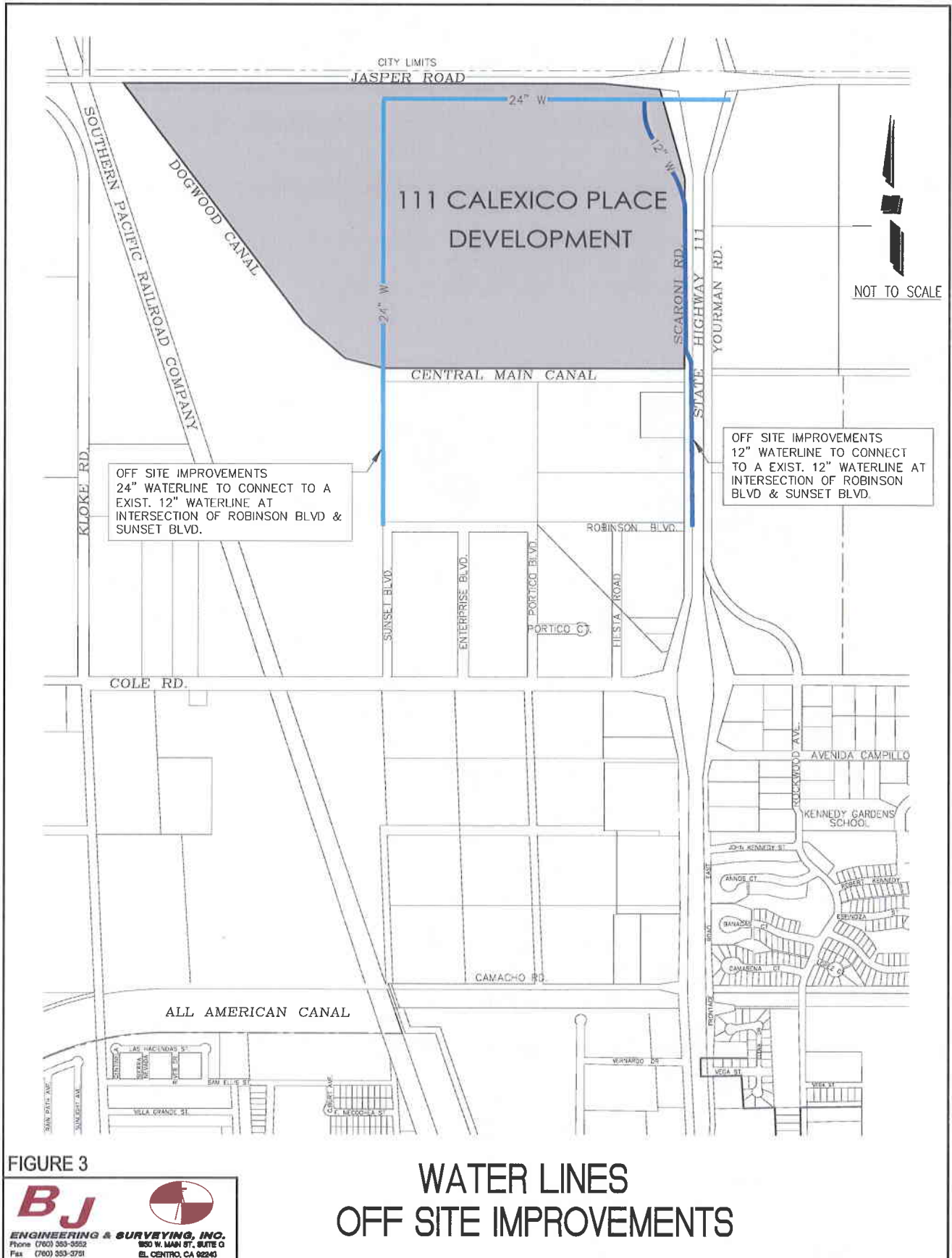


Table 2-D-1
Base Average Daily Demand
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,106.35	46.01	111 Calexico Place
J-2	1,000.00	Demand	13.14	Fixed	13.14	1,106.35	46.01	111 Calexico Place
J-3	1,000.00	Demand	9.95	Fixed	9.95	1,106.34	46.01	111 Calexico Place
J-4	1,000.00	Demand	10.04	Fixed	10.04	1,106.34	46.01	111 Calexico Place
J-5	1,000.00	Demand	13.16	Fixed	13.16	1,106.34	46.01	111 Calexico Place
J-6	1,000.00	Demand	22.07	Fixed	22.07	1,106.34	46.01	111 Calexico Place
J-7	1,000.00	Demand	13.99	Fixed	13.99	1,106.34	46.01	111 Calexico Place
J-8	1,000.00	Demand	16.16	Fixed	16.16	1,106.34	46.01	111 Calexico Place
J-9	1,000.00	Demand	3.50	Fixed	3.50	1,106.34	46.01	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,106.35	46.01	111 Calexico Place
J-11	1,000.00	Demand	16.93	Fixed	16.93	1,106.35	46.01	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,106.35	46.01	111 Calexico Place
J-13	1,000.00	Demand	20.47	Fixed	20.47	1,106.34	46.01	111 Calexico Place
J-14	1,000.00	Demand	32.74	Fixed	32.74	1,106.34	46.01	111 Calexico Place
J-15	1,000.00	Demand	28.77	Fixed	28.77	1,106.34	46.01	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,106.34	46.01	111 Calexico Place
J-17	1,000.00	Demand	10.83	Fixed	10.83	1,106.34	46.01	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,106.38	46.02	Robinson Connection
J-21	1,000.00	Demand	5.82	Fixed	5.82	1,106.35	46.01	Phase III
J-22	1,000.00	Demand	13.32	Fixed	13.32	1,106.34	46.01	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,106.34	46.01	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,106.36	46.02	Robinson Connection

Table 2-D-2
Maximum Daily Demand
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,105.96	45.85	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,105.95	45.84	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,105.94	45.83	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,105.94	45.83	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,105.94	45.83	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,105.94	45.83	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,105.94	45.83	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,105.94	45.83	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,105.94	45.84	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,105.95	45.84	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,105.95	45.84	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,105.96	45.84	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,105.93	45.83	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,105.93	45.83	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,105.93	45.83	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,105.94	45.83	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,105.94	45.83	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,106.01	45.87	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,105.95	45.84	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,105.94	45.84	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,105.94	45.83	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,105.99	45.85	Robinson Connection

Table 2-D-3
Peak Hour Demand
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,104.40	45.17	111 Calexico Place
J-2	1,000.00	Demand	35.48	Fixed	35.48	1,104.37	45.16	111 Calexico Place
J-3	1,000.00	Demand	26.86	Fixed	26.86	1,104.33	45.14	111 Calexico Place
J-4	1,000.00	Demand	27.11	Fixed	27.11	1,104.32	45.13	111 Calexico Place
J-5	1,000.00	Demand	35.53	Fixed	35.53	1,104.32	45.13	111 Calexico Place
J-6	1,000.00	Demand	59.59	Fixed	59.59	1,104.32	45.13	111 Calexico Place
J-7	1,000.00	Demand	37.77	Fixed	37.77	1,104.32	45.14	111 Calexico Place
J-8	1,000.00	Demand	43.63	Fixed	43.63	1,104.33	45.14	111 Calexico Place
J-9	1,000.00	Demand	9.45	Fixed	9.45	1,104.34	45.14	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,104.36	45.15	111 Calexico Place
J-11	1,000.00	Demand	45.71	Fixed	45.71	1,104.37	45.16	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,104.39	45.17	111 Calexico Place
J-13	1,000.00	Demand	55.27	Fixed	55.27	1,104.31	45.13	111 Calexico Place
J-14	1,000.00	Demand	88.40	Fixed	88.40	1,104.29	45.12	111 Calexico Place
J-15	1,000.00	Demand	77.68	Fixed	77.68	1,104.30	45.12	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,104.32	45.13	111 Calexico Place
J-17	1,000.00	Demand	29.24	Fixed	29.24	1,104.32	45.14	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,104.54	45.23	Robinson Connection
J-21	1,000.00	Demand	15.71	Fixed	15.71	1,104.35	45.15	Phase III
J-22	1,000.00	Demand	35.96	Fixed	35.96	1,104.33	45.14	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,104.33	45.14	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,104.46	45.20	Robinson Connection

Table 2-D-4
Maximum Daily Demand + Fire (2500gpm) @ J-2
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,058.05	25.11	111 Calexico Place
J-2	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,057.19	24.74	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,058.80	25.44	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.71	25.83	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,060.37	26.12	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,060.42	26.14	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,060.50	26.18	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,060.63	26.23	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,060.74	26.28	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,061.04	26.41	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,061.18	26.47	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,061.43	26.58	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.13	25.58	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.19	25.61	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.93	25.93	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,060.37	26.12	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,060.56	26.20	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,062.33	26.97	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,061.00	26.39	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,060.74	26.28	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,060.62	26.23	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,062.22	26.92	Robinson Connection

Table 2-D-5
Maximum Daily Demand + Fire (2500gpm) @ J-6
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,061.26	26.51	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.83	26.32	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.81	25.88	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.20	25.61	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,058.70	25.40	111 Calexico Place
J-6	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,058.67	25.38	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,058.90	25.48	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,059.25	25.63	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,059.49	25.74	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,060.09	26.00	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,060.38	26.12	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,060.76	26.29	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,060.21	26.05	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.74	25.85	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.19	25.61	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,058.70	25.40	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,059.07	25.55	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.42	27.44	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,060.01	25.96	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,059.48	25.73	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,059.23	25.63	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.96	26.81	Robinson Connection

Table 2-D-6
Maximum Daily Demand + Fire (2500gpm) @ J-7
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,060.92	26.36	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.49	26.17	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.49	25.74	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,058.90	25.48	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,058.48	25.30	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,058.46	25.29	111 Calexico Place
J-7	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,058.41	25.27	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,058.79	25.44	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,059.04	25.54	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,059.66	25.81	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,059.96	25.94	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,060.34	26.11	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.83	25.89	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.39	25.69	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,058.83	25.45	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,058.48	25.30	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,058.59	25.35	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.06	27.28	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,059.58	25.78	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,059.03	25.54	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,058.78	25.43	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.56	26.64	Robinson Connection

Table 2-D-7
Maximum Daily Demand + Fire (2500gpm) @ J-8
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,061.11	26.44	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.70	26.26	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.75	25.85	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.23	25.63	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,058.89	25.48	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,058.88	25.47	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,058.84	25.46	111 Calexico Place
J-8	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,058.79	25.44	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,059.06	25.55	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,059.70	25.83	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,060.01	25.96	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,060.40	26.13	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.98	25.95	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.61	25.79	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.08	25.56	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,058.89	25.48	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,058.84	25.46	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.20	27.34	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,059.62	25.79	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,059.05	25.55	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,058.84	25.46	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.63	26.67	Robinson Connection

Table 2-D-8
Maximum Daily Demand + Fire (2500gpm) @ J-11
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,061.55	26.63	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,061.19	26.47	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,060.46	26.16	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,060.12	26.01	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,059.91	25.92	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,059.90	25.92	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,059.89	25.91	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,059.87	25.90	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,059.85	25.89	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,059.82	25.88	111 Calexico Place
J-11	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,059.80	25.87	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,060.21	26.05	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,060.23	26.06	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,060.18	26.04	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.99	25.95	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,059.91	25.92	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,059.87	25.90	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.39	27.43	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,059.82	25.88	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,059.85	25.89	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,059.87	25.90	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.51	26.61	Robinson Connection

Table 2-D-9
Maximum Daily Demand + Fire (2500gpm) @ J-13
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,060.38	26.12	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,059.84	25.89	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.77	25.86	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.91	25.92	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,060.18	26.04	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,060.20	26.05	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,060.25	26.07	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,060.33	26.10	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,060.42	26.14	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,060.64	26.24	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,060.74	26.28	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,061.08	26.43	111 Calexico Place
J-13	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,047.83	20.69	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,055.91	24.19	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.42	25.71	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,060.18	26.04	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,060.29	26.08	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.08	27.29	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,060.61	26.22	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,060.41	26.14	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,060.33	26.10	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,062.16	26.89	Robinson Connection

Table 2-D-10
Maximum Daily Demand + Fire (2500gpm) @ J-15
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,061.31	26.52	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.84	26.32	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.89	25.91	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.65	25.81	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,059.69	25.83	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,059.70	25.83	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,059.79	25.87	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,059.92	25.93	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,060.12	26.01	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,060.63	26.23	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,060.87	26.34	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,061.23	26.49	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.74	25.84	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,058.17	25.17	111 Calexico Place
J-15	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,053.98	23.36	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,059.69	25.83	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,059.85	25.90	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,063.63	27.53	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,060.56	26.20	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,060.12	26.01	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,059.92	25.93	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,062.38	26.99	Robinson Connection

Table 2-D-11
Maximum Daily Demand + Fire (2500gpm) @ J-17
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,060.84	26.32	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.42	26.14	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.47	25.73	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,058.93	25.50	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,058.57	25.34	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,058.55	25.33	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,058.52	25.32	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,058.61	25.36	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,058.82	25.45	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,059.45	25.72	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,059.76	25.85	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,060.14	26.02	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.71	25.83	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.33	25.67	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,058.80	25.44	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,058.57	25.34	111 Calexico Place
J-17	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,054.85	23.73	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,062.95	27.23	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,059.33	25.67	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,058.55	25.33	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,057.68	24.95	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.38	26.56	Robinson Connection

Table 2-D-12
Maximum Daily Demand + Fire (2500gpm) @ J-21
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,060.86	26.33	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,060.48	26.16	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,059.68	25.82	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,059.28	25.65	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,059.04	25.54	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,059.02	25.54	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,059.00	25.53	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,058.98	25.52	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,058.98	25.52	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,058.99	25.52	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,059.35	25.68	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,059.75	25.85	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.55	25.76	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,059.43	25.71	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,059.14	25.59	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,059.04	25.54	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,058.95	25.50	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,062.81	27.18	Robinson Connection
J-21	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,052.53	22.73	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,058.09	25.13	Phase III
J-24	1,000.00	Demand	0.00	Fixed	0.00	1,058.91	25.49	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,061.04	26.41	Robinson Connection

Table 2-D-13
Maximum Daily Demand + Fire (2500gpm) @ J-24
Steady State Analysis
Junction Report

Label	Elevation (ft)	Type	Base Flow (gpm)	Pattern	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Zone
J-1	1,000.00	Demand	0.00	Fixed	0.00	1,060.35	26.11	111 Calexico Place
J-2	1,000.00	Demand	19.71	Fixed	19.71	1,059.93	25.93	111 Calexico Place
J-3	1,000.00	Demand	14.93	Fixed	14.93	1,058.99	25.52	111 Calexico Place
J-4	1,000.00	Demand	15.06	Fixed	15.06	1,058.47	25.30	111 Calexico Place
J-5	1,000.00	Demand	19.74	Fixed	19.74	1,058.13	25.15	111 Calexico Place
J-6	1,000.00	Demand	33.11	Fixed	33.10	1,058.11	25.14	111 Calexico Place
J-7	1,000.00	Demand	20.98	Fixed	20.99	1,058.08	25.13	111 Calexico Place
J-8	1,000.00	Demand	24.24	Fixed	24.24	1,058.08	25.13	111 Calexico Place
J-9	1,000.00	Demand	5.25	Fixed	5.25	1,058.27	25.21	111 Calexico Place
J-10	1,000.00	Demand	0.00	Fixed	0.00	1,058.88	25.47	111 Calexico Place
J-11	1,000.00	Demand	25.40	Fixed	25.40	1,059.20	25.61	111 Calexico Place
J-12	1,000.00	Demand	0.00	Fixed	0.00	1,059.59	25.78	111 Calexico Place
J-13	1,000.00	Demand	30.70	Fixed	30.70	1,059.18	25.60	111 Calexico Place
J-14	1,000.00	Demand	49.11	Fixed	49.11	1,058.83	25.45	111 Calexico Place
J-15	1,000.00	Demand	43.16	Fixed	43.15	1,058.32	25.23	111 Calexico Place
J-16	1,000.00	Demand	0.00	Fixed	0.00	1,058.13	25.15	111 Calexico Place
J-17	1,000.00	Demand	16.25	Fixed	16.25	1,056.93	24.63	111 Calexico Place
J-20	1,000.00	Demand	0.00	Fixed	0.00	1,062.46	27.02	Robinson Connection
J-21	1,000.00	Demand	8.73	Fixed	8.73	1,058.71	25.40	Phase III
J-22	1,000.00	Demand	19.98	Fixed	19.98	1,057.58	24.91	Phase III
J-24	1,000.00	Demand	2,500.00	Fixed	2,500.00	1,055.93	24.20	Private Road
J-25	1,000.00	Demand	0.00	Fixed	0.00	1,060.85	26.33	Robinson Connection

111 CALEXICO PLACE MAXIMUM DAY DEMAND PLUS FIRE LOCATIONS

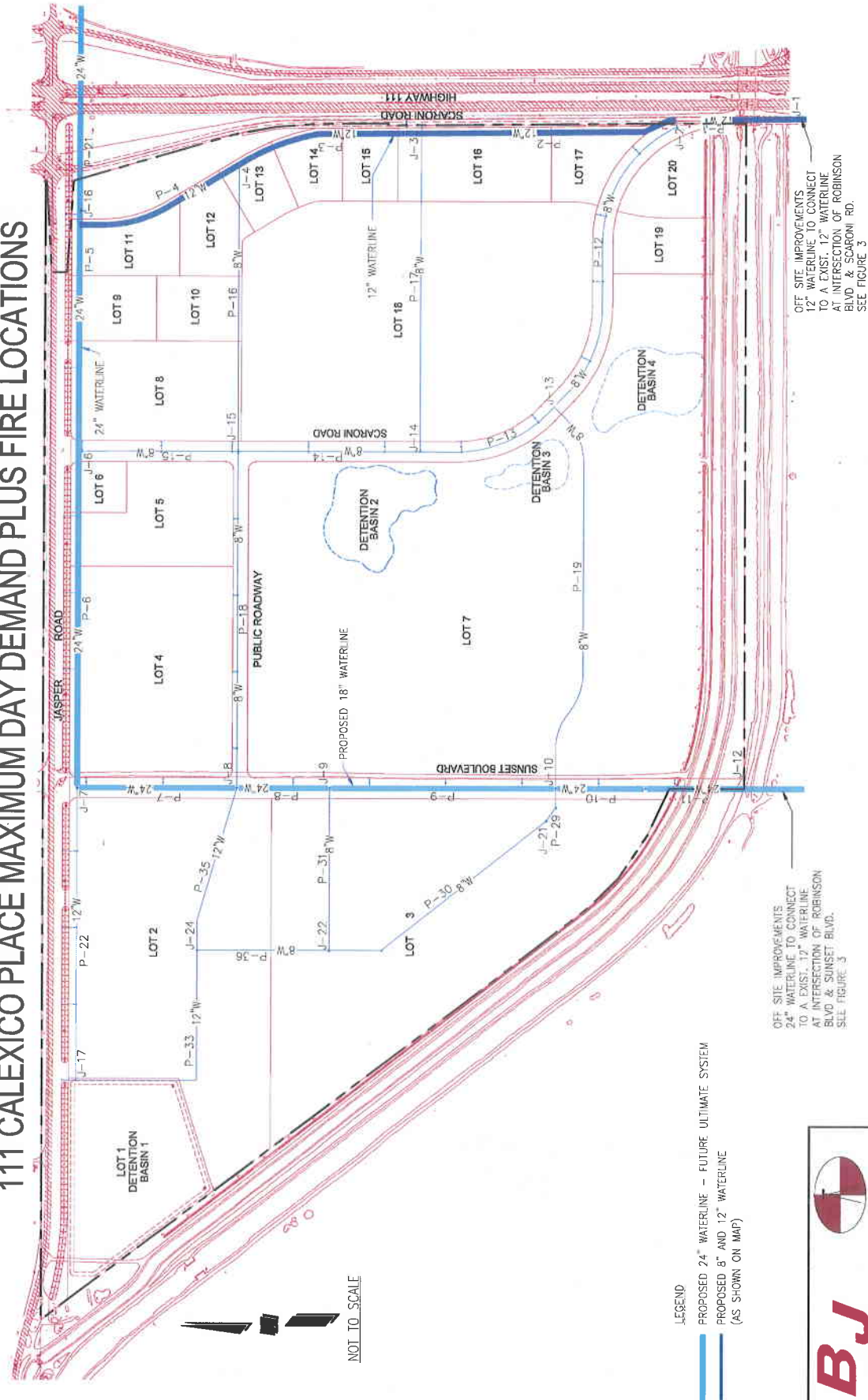


FIGURE 4



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EL CENTRO, CA 92543

2.5 Backbone Facilities

Figure 2 shows new backbone facilities for the 111 Calexico Place development correlating with the Service Area Plan and the PBS&J Master Plan for Jasper Corridor.

With the backbone piping in place, the system operates under maximum daily demand plus fire flow criteria along with residual pressure of 20 psi system-wide for all three phases.

2.6 Water Storage and Water Treatment Plant

The City plans to expand the existing water treatment plant to increase capacity from 14 MGD to 16 MGD. The City is currently at 6.7 average daily demand; 10.06 maximum daily demand. 111 Calexico Place is projected to be 0.24 average daily demand; 0.36 maximum daily demand.

3.0 Wastewater

3.1 Introduction

This section describes the existing collection system for the city. The wastewater flow from 111 Calexico Place will be evaluated to see how it affects the existing system.

3.2 Existing Facilities

The wastewater treatment plant is located north of Calexico International Airport and south of New River. The plant has a capacity of 4.3 MGD with 2.5 MGD by activated sludge and 1.8 MGD by aerated lagoons. The current average flow is approximately 2.7 MGD. The aerated lagoons are expected to be replaced with an activated sludge process. Treated flows are discharged directly into the New River. Existing wastewater lines in the wastewater system range from 6" to 30."

Due to the flat topography of the city, most of the wastewater lines have been designed at minimum slopes, with lift stations throughout the city. 111 Calexico Place will have an affect on two existing lift stations, which will be addressed later in this report.

3.3 Service Area Plan

The Service Area Plan (2006) notes that the existing wastewater collection system was evaluated for average daily flows and peak wet weather flow conditions. The results revealed that the existing wastewater collection system provides an adequate capacity during average daily flow conditions. During peak wet weather flow conditions, some of the wastewater lines are at full capacity.

The Service Area Plan includes wastewater facilities improvements and upgrades to the existing City facilities to adequately serve future growth within the next five years:

- Install a regional pump station near the intersection of La Vigne Road and Bowker Road
- Expand the existing wastewater treatment plant to increase the average daily flow from 4.3 MGD to 8.5 MGD
- Replace existing 12" pipeline with an 18" gravity pipeline along Ollie Ave
- Install a 42" pipeline along Kloke Road between State Route 98 and the All American Canal
- Install a 48" pipeline along Kloke Road between State Route 98, Birch Street and the existing waste water treatment plant.
- Design and construct a new satellite 4 MGD (expandable to 10 MGD) wastewater treatment plant on the east side of town. (This is an alternative to upgrading the existing plant.). The design of the upgrade of the existing plant is in progress.

3.4 Planned Wastewater System

3.4.1 Design Criteria

Wastewater design criteria for the 111 Calexico Place project for an adequate wastewater system were taken from the Calexico Service Area Plan 2006.

No residential criteria need be applied to this project as the zoning will be Commercial Highway (CH).

- Commercial average daily flow 1,600 GPD/acre per Service Area Plan
- We recommend an increase to 2,000 GPD/acre
- A factor of 2 is applied to average daily flow to determine the peak daily flow

The fire/police station will use commercial wastewater criteria.

3.4.2 Wastewater Flow

According to the PBS&J Jasper Corridor Master Plan the average daily flow for Jasper Corridor developments, excluding Scaroni and Santa Fe, is 2.9 MGD with a peak flow of 5.8 MGD. The wastewater for the Scaroni and Santa Fe developments is estimated as follows:

- Scaroni: 123,000 GPD average daily flow
- Santa Fe: 329,000 GPD average daily flow

Since these volumes are above what the existing system can handle, a new trunk system needs to be installed per the PBS&J Master Plan. Our calculations will show the impacts on lift stations 9 and 11.

Table 3-A shows the average daily flow of 37,365 gallons and the peak hour flow of 3,114 gallons for the casino resort.

All three phases of 111 Calexico Place demands are shown in Tables 3-B and 3-C.

Table 3-A

CASINO RESORT COMPLEX ESTIMATED WASTE WATER FLOWS TABLE									
WITHIN PHASE I - YEAR 2008 TO 2012 (4 YEARS)									
AREA 60.3 ACRES									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
GAMING AREA	2.16 AC	1000	GAMBLING	15	GALLONS/GAMBLERS/DAY	15,000	0.0150	10.42	
RESTAURANT & LOUNGES	1.26 AC	700	MEAL	10	GALLONS/MEAL/DAY	7,000	0.0070	4.86	
RETAIL	0.18 AC	0.18	AC	2000	GALLONS/ACRE/DAY	360	0.0004	0.25	
MEETING & ASSEMBLY SPACE	1.06 AC	500	CAPITA	10	GALLONS/CAPITA/DAY	5,000	0.0050	3.47	
ENTERTAINMENT & RECREATION	0.89 AC	420	CAPITA	8	GALLONS/CAPITA/DAY	3,360	0.0034	2.33	
BACK OF HOUSE AREA (FACILITY SUPPORT & EMPLOYEES FACILITIES)	5.00 AC	4.43	AC	1500	GALLONS/CAPITA/DAY	6,645	0.0066	4.61	
	10.55 AC					37,365	0.0374	25.95	

Table 3-A includes the waste water demand for the Casino Resort Complex only.

Table 3-B

111 CALEXICO PLACE ESTIMATED WASTE WATER FLOWS TABLE									
P H A S E I									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
CASINO RESORT COMPLEX & HOTEL (60.3 ACRES)	YEAR 2008~2012 (4 YEARS)								
CASINO RESORT COMPLEX	10.56 AC					37,365	0.04	25.95	
HOTEL (200 ROOMS)	200 ROOMS	280	GUEST	100	GALLONS/GUEST/DAY	28,000	0.03	19.44	
COMMERCIAL HIGHWAY DEVELOPMENT (1=56.8 ACRES, 2=17.9 ACRES)	1.- YEAR 2008 TO 2010 (3 YEARS)								
	2.-YEAR 2010 TO 2012 (3 YEARS)								
1 RETAIL	8.17 AC	8.17	ACRE	2000	GALLONS/ACRE/DAY	16,340	0.0163	11.35	
RESTAURANT	2.39 AC	4900	MEAL	10	GALLON/MEAL/DAY	49,000	0.0490	34.03	
RESTAURANT/RETAIL	1.26 AC	3132	MEAL	10	GALLON/ACRE/DAY	31,320	0.0313	21.76	
2 HOTEL	200 ROOMS	280	GUEST	100	GALLON/GUEST/DAY	28,000	0.0280	19.44	
OFFICE	2.75 AC	1500	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	15,000	0.0150	10.42	
RETAIL	0.14 AC	0.14	ACRE	2000	GALLON/MEAL/DAY	280	0.0003	0.19	
						205,305	0.2053	142.57	
P H A S E II									
LAND USE	TOTAL	QUANTITY	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
COMMERCIAL HIGHWAY DEVELOPMENT (22.5 ACRES)	YEAR 2012 TO 2014 (2 YEARS)								
OFFICE	6.31 ACRES	1400	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	14,000	0.0140	9.72	
						14,000	0.0140	9.72	
P H A S E III									
LAND USE	QUANTITY	UNITS	UNITS	VALUE	AVERAGE UNIT FLOW	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE	
COMMERCIAL HIGHWAY DEVELOPMENT (27.6 ACRES)	YEAR 2014 TO 2018 (2 YEARS)								
OFFICE TECH	7.81 AC	1800	EMPLOYEE	10	GALLON/EMPLOYEE/DAY	18,000	0.0180	12.50	
						18,000	0.0180	12.50	

Table 3-C

AVERAGE DAY FLOW = (ADF)
PEAK FLOW (PF) = (2.0 X ADF)

PHASE I	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAY DEMAND =	205,305	0.2053	142.57
PEAK FLOW	410,610	0.4106	285.15

PHASE II	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAY DEMAND =	14,000	0.0140	9.72
PEAK FLOW	28,000	0.0280	19.44

PHASE III	FLOW GALLONS / DAY	FLOW MILLIONS GALLONS / DAY	FLOW GALLONS / MINUTE
AVERAGE DAY DEMAND =	18,000	0.0180	12.50
PEAK FLOW	36,000	0.0360	25.00

TOTAL	PHASE I GALLONS / MINUTE	PHASE II GALLONS / MINUTE	PHASE III GALLONS / MINUTE	TOTAL GALLONS / MINUTE
AVERAGE DAY DEMAND	142.57	9.72	12.50	164.80
PEAK FLOW	285.15	19.44	25.00	329.60

NOTES:
1.- HOTEL ROOMS AVERAGE 70% OCCUPANCY (2 PERSONS / ROOM).

3.4.3 Hydraulic Analysis

A model was developed by using the existing infrastructure, which is a 12" stub-out wastewater line located at Robinson Boulevard and Scaroni Road intersection. This wastewater line flow goes into two existing wastewater lift stations 9 and 11; then, to the wastewater treatment plant.

Design criteria:

- Infiltration and inflow (I/I) = 10% of ADF.
- Manning's roughness coefficient $n = 0.012$.
- Flow velocities shall be no greater than 20 feet per second
- Flow velocities shall be no less than 2 feet per second
- Depth to Diameter Ratio (d/D) as follows:

<u>Pipe Diameter</u>	<u>Design Criteria</u>
6 " to 12 "	$d/D = 0.50$
15" to 18"	$d/D = 0.75$
21" and greater	$d/D = 0.93$

Also in order to verify that the existing sewer system will be operating in an optimal way is once the 111 Calexico Place Phase I is discharging in the City infrastructure (for a temporary period), It was created as a general hydraulic model following the routing from the project connection point to the WWTP. According to this the existing system will work to $\pm 73\%$ of its maximum capacity in Peak Flow condition.

Design criteria:

- City of Calexico Sewer Map for existing pipeline reference.
- The existing flows were estimated according to the land use; areas and their corresponding water demand.
- The model was run considering the peak flow.
- Manning's roughness coefficient $n = 0.01$.
- Average slope 0.2%
- Peak Flow for Phase I is 285.15 gpm.

3.4.4 Backbone System

111 Calexico Place will utilize the existing wastewater infrastructure with an on-site wastewater lift station with a capacity of 400 GPM along with a 6" force-main connecting to the existing 12" stub-out located at Robinson Boulevard and Scaroni Road. This will meet the peak flow for all three phases of 111 Calexico Place.

See Figure 4 and Tables 3-D, 3-E and 3-F.

111 CALEXICO PLACE WASTE WATER SYSTEM

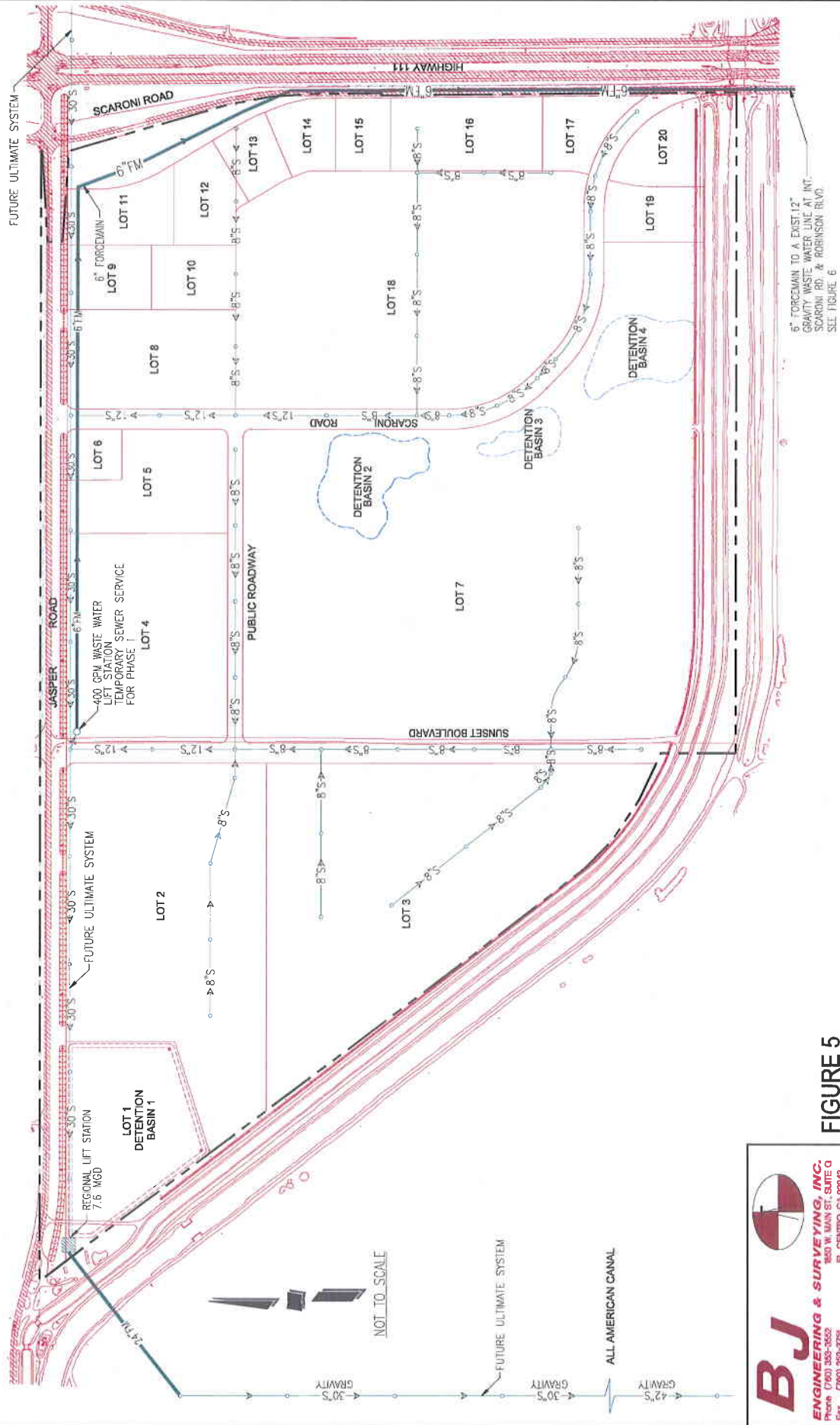


FIGURE 5

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 EL CERRILLO, CA 92240
 TEL: (760) 383-3751

**Table 3-D Waste Water Flows with a 400 GPM Sewer Lift Station
(For the 111 Calexico Place Development)
Average Daily Flow**

Label	Upstream Node	Downstream Node	Length (ft)	Material	Section Size	Upstream Invert Elev. (ft)	Downstream Invert Elev. (ft)	Constructed Slope (ft/ft)	Design Capacity (gpm)	Excess Design Capacity (gpm)	Total Flow (gpm)	Full (%)	Description
P-1	MH-1	MH-2	309	PVC	8 inch	91.00	90.07	0.0030	386.79	386.79	0.00	0.00	Scaroni Rd.
P-2	MH-2	MH-3	140	PVC	8 inch	90.07	89.65	0.0030	386.17	375.05	11.12	11.12	Scaroni Rd.
P-3	MH-3	MH-4	249	PVC	8 inch	89.65	88.90	0.0030	386.94	375.82	11.12	2.90	Scaroni Rd.
P-4	MH-4	MH-5	372	PVC	8 inch	88.90	87.78	0.0030	386.86	375.74	11.12	2.90	Scaroni Rd.
P-5	MH-5	MH-6	105	PVC	8 inch	87.78	87.47	0.0030	383.09	343.44	39.65	10.30	Scaroni Rd.
P-6	MH-6	MH-7	194	PVC	8 inch	86.89	86.31	0.0030	385.51	345.86	39.65	10.30	Scaroni Rd.
P-7	MH-7	MH-8	129	PVC	8 inch	86.31	85.92	0.0030	387.66	348.01	39.65	10.20	Scaroni Rd.
P-8	MH-8	MH-9	359	PVC	8 inch	85.92	84.94	0.0030	386.71	316.24	70.47	18.20	Scaroni Rd.
P-9	MH-9	MH-10	300	PVC	12 inch	84.94	83.76	0.0030	1140.14	1069.67	70.47	6.20	Scaroni Rd.
P-10	MH-10	MH-11	351	PVC	12 inch	83.76	82.86	0.0030	1136.94	1004.30	132.64	11.60	Scaroni Rd.
P-11	MH-11	MH-12	174	PVC	8 inch	82.86	82.86	0.0030	385.43	385.43	0.00	0.00	Private Road
P-12	MH-12	MH-13	324	PVC	8 inch	82.86	81.81	0.0030	385.77	367.29	18.48	3.70	Private Road
P-13	MH-13	MH-14	321	PVC	8 inch	81.81	80.90	0.0030	385.77	367.29	18.48	4.70	Private Road
P-14	MH-14	MH-15	316	PVC	8 inch	80.90	80.41	0.0030	388.13	385.95	0.00	0.00	Private Road
P-15	MH-15	MH-16	287	PVC	8 inch	80.41	79.86	0.0030	385.95	367.95	17.33	4.50	Private Road
P-16	MH-16	MH-17	288	PVC	8 inch	79.86	79.28	0.0030	385.95	368.62	17.33	4.50	Private Road
P-17	MH-17	MH-18	273	PVC	8 inch	79.28	78.70	0.0030	384.95	381.37	3.58	0.90	Private Road
P-18	MH-18	MH-19	265	PVC	8 inch	78.70	78.30	0.0030	387.38	380.22	7.16	1.80	Private Road
P-19	MH-19	MH-20	300	PVC	8 inch	78.30	77.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-20	MH-20	MH-21	300	PVC	8 inch	77.10	76.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-21	MH-21	MH-22	300	PVC	8 inch	76.07	75.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-22	MH-22	MH-23	300	PVC	8 inch	75.09	74.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-23	MH-23	MH-24	300	PVC	8 inch	74.12	73.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-24	MH-24	MH-25	300	PVC	8 inch	73.10	72.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-25	MH-25	MH-26	300	PVC	8 inch	72.10	71.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-26	MH-26	MH-27	300	PVC	8 inch	71.07	70.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-27	MH-27	MH-28	300	PVC	8 inch	70.07	69.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-28	MH-28	MH-29	300	PVC	8 inch	69.07	68.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-29	MH-29	MH-30	300	PVC	8 inch	68.07	67.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-30	MH-30	MH-31	300	PVC	8 inch	67.07	66.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-31	MH-31	MH-32	300	PVC	8 inch	66.07	65.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-32	MH-32	MH-33	300	PVC	8 inch	65.09	64.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-33	MH-33	MH-34	300	PVC	8 inch	64.12	63.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-34	MH-34	MH-35	300	PVC	8 inch	63.10	62.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-35	MH-35	MH-36	300	PVC	8 inch	62.07	61.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-36	MH-36	MH-37	300	PVC	8 inch	61.07	60.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-37	MH-37	MH-38	300	PVC	8 inch	60.07	59.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-38	MH-38	MH-39	300	PVC	8 inch	59.07	58.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-39	MH-39	MH-40	300	PVC	8 inch	58.07	57.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-40	MH-40	MH-41	300	PVC	8 inch	57.07	56.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-41	MH-41	MH-42	300	PVC	8 inch	56.07	55.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-42	MH-42	MH-43	300	PVC	8 inch	55.09	54.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-43	MH-43	MH-44	300	PVC	8 inch	54.12	53.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-44	MH-44	MH-45	300	PVC	8 inch	53.10	52.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-45	MH-45	MH-46	300	PVC	8 inch	52.07	51.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-46	MH-46	MH-47	300	PVC	8 inch	51.07	50.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-47	MH-47	MH-48	300	PVC	8 inch	50.07	49.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-48	MH-48	MH-49	300	PVC	8 inch	49.07	48.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-49	MH-49	MH-50	300	PVC	8 inch	48.07	47.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-50	MH-50	MH-51	300	PVC	8 inch	47.07	46.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-51	MH-51	MH-52	300	PVC	8 inch	46.07	45.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-52	MH-52	MH-53	300	PVC	8 inch	45.09	44.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-53	MH-53	MH-54	300	PVC	8 inch	44.12	43.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-54	MH-54	MH-55	300	PVC	8 inch	43.10	42.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-55	MH-55	MH-56	300	PVC	8 inch	42.07	41.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-56	MH-56	MH-57	300	PVC	8 inch	41.07	40.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-57	MH-57	MH-58	300	PVC	8 inch	40.07	39.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-58	MH-58	MH-59	300	PVC	8 inch	39.07	38.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-59	MH-59	MH-60	300	PVC	8 inch	38.07	37.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-60	MH-60	MH-61	300	PVC	8 inch	37.07	36.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-61	MH-61	MH-62	300	PVC	8 inch	36.07	35.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-62	MH-62	MH-63	300	PVC	8 inch	35.09	34.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-63	MH-63	MH-64	300	PVC	8 inch	34.12	33.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-64	MH-64	MH-65	300	PVC	8 inch	33.10	32.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-65	MH-65	MH-66	300	PVC	8 inch	32.07	31.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-66	MH-66	MH-67	300	PVC	8 inch	31.07	30.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-67	MH-67	MH-68	300	PVC	8 inch	30.07	29.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-68	MH-68	MH-69	300	PVC	8 inch	29.07	28.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-69	MH-69	MH-70	300	PVC	8 inch	28.07	27.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-70	MH-70	MH-71	300	PVC	8 inch	27.07	26.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-71	MH-71	MH-72	300	PVC	8 inch	26.07	25.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-72	MH-72	MH-73	300	PVC	8 inch	25.09	24.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-73	MH-73	MH-74	300	PVC	8 inch	24.12	23.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-74	MH-74	MH-75	300	PVC	8 inch	23.10	22.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-75	MH-75	MH-76	300	PVC	8 inch	22.07	21.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-76	MH-76	MH-77	300	PVC	8 inch	21.07	20.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-77	MH-77	MH-78	300	PVC	8 inch	20.07	19.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-78	MH-78	MH-79	300	PVC	8 inch	19.07	18.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-79	MH-79	MH-80	300	PVC	8 inch	18.07	17.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-80	MH-80	MH-81	300	PVC	8 inch	17.07	16.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-81	MH-81	MH-82	300	PVC	8 inch	16.07	15.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-82	MH-82	MH-83	300	PVC	8 inch	15.09	14.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-83	MH-83	MH-84	300	PVC	8 inch	14.12	13.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-84	MH-84	MH-85	300	PVC	8 inch	13.10	12.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-85	MH-85	MH-86	300	PVC	8 inch	12.07	11.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-86	MH-86	MH-87	300	PVC	8 inch	11.07	10.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-87	MH-87	MH-88	300	PVC	8 inch	10.07	9.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-88	MH-88	MH-89	300	PVC	8 inch	9.07	8.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-89	MH-89	MH-90	300	PVC	8 inch	8.07	7.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-90	MH-90	MH-91	300	PVC	8 inch	7.07	6.07	0.0030	386.17	386.17	0.00	0.00	Private Road
P-91	MH-91	MH-92	300	PVC	8 inch	6.07	5.09	0.0030	386.17	386.17	0.00	0.00	Private Road
P-92	MH-92	MH-93	300	PVC	8 inch	5.09	4.12	0.0030	386.17	386.17	0.00	0.00	Private Road
P-93	MH-93	MH-94	300	PVC	8 inch	4.12	3.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-94	MH-94	MH-95	300	PVC									

Table 3-E Waste Water Flows with a 400 GPM Sewer Lift Station
(For the 111 Calexico Place Development)
PWWF

Label	Upstream Node	Downstream Node	Length (ft)	Material	Section Size	Upstream Invert Elev. (ft)	Downstream Invert Elev. (ft)	Constructed Slope (ft/ft)	Design Capacity (gpm)	Excess Design Capacity (gpm)	Total Flow (gpm)	Full (%)	Description
P-1	MH-1	MH-2	309	PVC	8 inch	91.00	90.07	0.0030	386.79	386.79	0.00	0.00	Scaroni Rd.
P-2	MH-2	MH-3	140	PVC	8 inch	90.07	89.65	0.0030	386.79	383.93	22.24	5.80	Scaroni Rd.
P-3	MH-3	MH-4	249	PVC	8 inch	89.65	88.90	0.0030	386.79	384.70	22.24	5.70	Scaroni Rd.
P-4	MH-4	MH-5	372	PVC	8 inch	88.90	87.78	0.0030	386.86	384.62	22.24	5.70	Scaroni Rd.
P-5	MH-5	MH-6	105	PVC	8 inch	87.78	87.47	0.0030	383.09	303.79	79.30	20.70	Scaroni Rd.
P-8	MH-8	MH-9	184	PVC	8 inch	86.89	86.31	0.0030	385.51	306.21	79.30	20.60	Scaroni Rd.
P-9	MH-9	MH-10	129	PVC	8 inch	86.31	85.92	0.0030	387.66	308.36	79.30	20.50	Scaroni Rd.
P-10	MH-10	MH-11	359	PVC	8 inch	85.92	84.84	0.0030	386.71	245.77	140.94	36.40	Scaroni Rd.
P-11	MH-11	MH-12	359	PVC	12 inch	84.84	83.76	0.0030	1140.14	999.20	140.94	12.40	Scaroni Rd.
P-12	MH-12	MH-13	300	PVC	12 inch	83.76	82.86	0.0030	1138.56	873.28	265.28	23.30	Scaroni Rd.
P-13	MH-13	MH-14	351	PVC	12 inch	82.86	81.81	0.0030	1136.94	871.66	265.28	23.30	Scaroni Rd.
P-14	MH-14	MH-15	174	PVC	8 inch	89.42	88.90	0.0030	385.43	385.43	0.00	0.00	Private Road
P-15	MH-15	MH-16	324	PVC	8 inch	88.90	87.93	0.0030	385.77	357.11	28.66	7.40	Private Road
P-16	MH-16	MH-17	321	PVC	8 inch	87.93	86.97	0.0030	385.57	349.01	36.56	9.50	Private Road
P-17	MH-17	MH-18	316	PVC	8 inch	86.97	85.92	0.0030	408.41	389.85	36.56	9.00	Private Road
P-18	MH-18	MH-19	287	PVC	8 inch	85.92	84.41	0.0030	385.95	385.95	0.00	0.00	Private Road
P-19	MH-19	MH-20	288	PVC	8 inch	84.41	83.55	0.0030	385.28	350.62	34.66	9.00	Private Road
P-20	MH-20	MH-21	287	PVC	8 inch	83.55	82.69	0.0030	385.95	351.29	34.66	9.00	Private Road
P-21	MH-21	MH-22	273	PVC	8 inch	82.69	81.76	0.0030	411.51	376.85	34.66	8.40	Private Road
P-22	MH-22	MH-23	265	PVC	8 inch	81.76	80.49	0.0030	384.95	377.79	7.16	1.90	Private Road
P-23	MH-23	MH-24	265	PVC	8 inch	80.49	79.70	0.0030	387.38	373.06	14.32	3.70	Private Road
P-24	MH-24	MH-25	300	PVC	8 inch	79.70	78.90	0.0030	386.17	386.17	0.00	0.00	Private Road
P-25	MH-25	MH-26	366	PVC	8 inch	78.90	78.10	0.0030	403.71	403.71	0.00	0.00	Private Road
P-26	MH-26	MH-27	358	PVC	8 inch	78.10	77.30	0.0030	385.45	385.45	0.00	0.00	Sunset Blvd.
P-27	MH-27	MH-28	303	PVC	8 inch	77.30	76.50	0.0030	386.38	376.38	10.00	2.60	Sunset Blvd.
P-28	MH-28	MH-29	303	PVC	8 inch	76.50	75.70	0.0030	386.38	376.38	10.00	2.60	Sunset Blvd.
P-29	MH-29	MH-30	303	PVC	8 inch	75.70	74.90	0.0030	386.38	376.38	10.00	2.60	Sunset Blvd.
P-30	MH-30	MH-31	342	PVC	8 inch	74.90	74.10	0.0030	386.38	376.38	10.00	2.60	Sunset Blvd.
P-31	MH-31	MH-32	325	PVC	12 inch	74.10	73.30	0.0030	1141.47	1097.17	44.30	6.50	Sunset Blvd.
P-32	MH-32	MH-33	325	PVC	12 inch	73.30	72.50	0.0030	1135.64	1081.10	54.54	4.80	Sunset Blvd.
P-33	MH-33	MH-34	300	PVC	8 inch	72.50	71.70	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-34	MH-34	MH-35	300	PVC	8 inch	71.70	70.90	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-35	MH-35	MH-36	300	PVC	8 inch	70.90	70.10	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-36	MH-36	MH-37	300	PVC	8 inch	70.10	69.30	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-37	MH-37	MH-38	285	PVC	8 inch	69.30	68.50	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-38	MH-38	MH-39	377	PVC	8 inch	68.50	67.70	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-39	MH-39	MH-40	377	PVC	8 inch	67.70	66.90	0.0030	386.17	386.17	0.00	0.00	Public Roadway
P-40	MH-40	MH-41	94	PVC	8 inch	66.90	66.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-41	MH-41	MH-42	94	PVC	8 inch	66.10	65.30	0.0030	386.17	386.17	0.00	0.00	Private Road
P-42	MH-42	MH-43	331	PVC	8 inch	65.30	64.50	0.0030	386.17	386.17	0.00	0.00	Private Road
P-43	MH-43	MH-44	331	PVC	8 inch	64.50	63.70	0.0030	386.17	386.17	0.00	0.00	Private Road
P-44	MH-44	MH-45	300	PVC	8 inch	63.70	62.90	0.0030	386.17	386.17	0.00	0.00	Private Road
P-45	MH-45	MH-46	300	PVC	8 inch	62.90	62.10	0.0030	386.17	386.17	0.00	0.00	Private Road
P-46	MH-46	MH-47	354	PVC	8 inch	62.10	61.30	0.0030	386.17	386.17	0.00	0.00	Private Road
P-47	MH-47	MH-48	113	PVC	8 inch	61.30	60.50	0.0030	386.17	386.17	0.00	0.00	Private Road
P-48	MH-48	MH-49	194	PVC	8 inch	60.50	59.70	0.0030	386.17	386.17	0.00	0.00	Private Road
P-49	MH-49	MH-50	455	PVC	30 inch	59.70	58.90	0.0010	7183.80	6908.74	275.06	3.80	Jasper Rd.
P-51	MH-51	MH-52	440	PVC	30 inch	58.90	58.10	0.0010	7215.59	6940.53	275.06	3.80	Jasper Rd.
P-52	MH-52	MH-53	425	PVC	30 inch	58.10	57.30	0.0010	7155.92	6880.86	275.06	3.80	Jasper Rd.
P-100	MH-34	WW-2	68	PVC	12 inch	84.00	83.80	0.0030	1127.34	797.74	329.60	29.20	From Sunset Blvd. to Lift Station
										1127.34	797.74	329.60	29.20
										Total (mgd)=		0.4746	

Table 3-F Manhole Invert Elevations

MH Depth Elevations			
Label	Rim Elevation (ft)	Sump Elevation (ft)	Depth (ft)
MH-1	102.25	91.00	11.25
MH-2	98.05	90.07	7.98
MH-3	98.45	89.65	8.80
MH-4	99.15	88.90	10.25
MH-5	98.35	87.78	10.57
MH-6	98.65	87.47	11.18
MH-8	99.30	86.89	12.41
MH-9	98.85	86.31	12.54
MH-10	98.40	85.92	12.48
MH-11	99.20	84.84	14.36
MH-12	98.35	83.76	14.59
MH-13	98.85	82.86	15.99
MH-14	100.00	85.19	14.81
MH-15	99.80	89.42	10.38
MH-16	99.90	88.90	11.00
MH-17	98.30	87.93	10.37
MH-18	99.30	86.97	12.33
MH-19	99.70	87.27	12.43
MH-20	99.45	86.41	13.04
MH-21	99.00	85.55	13.45
MH-22	99.30	84.69	14.61
MH-23	98.50	90.49	8.01
MH-24	98.95	89.70	9.25
MH-25	99.20	93.00	6.20
MH-26	98.60	92.10	6.50
MH-27	104.50	90.90	13.60
MH-28	98.55	89.83	8.72
MH-29	98.50	88.92	9.58
MH-30	97.65	88.01	9.64
MH-31	98.85	87.10	11.75
MH-32	98.40	86.07	12.33
MH-33	98.75	85.09	13.66
MH-34	99.80	84.00	15.80
MH-35	98.95	89.73	9.22
MH-36	99.25	88.83	10.42
MH-37	98.70	87.93	10.77
MH-38	99.50	87.03	12.47
MH-39	99.25	92.68	6.57
MH-40	98.00	91.55	6.45
MH-41	98.45	90.42	8.03
MH-42	98.45	90.21	8.24
MH-43	98.60	90.60	8.00
MH-44	99.80	89.60	10.20
MH-45	98.35	89.37	8.98
MH-46	97.45	88.47	8.98
MH-47	98.60	87.57	11.03
MH-48	98.80	86.51	12.29
MH-49	98.00	86.08	11.92
MH-50	98.00	85.63	12.37
MH-51	98.00	84.78	13.22
MH-52	98.00	84.38	13.62
MH-53	98.50	83.60	14.90
MH-54	98.00	83.18	14.82
MH-55	98.00	82.78	15.22
MH-56	98.00	82.38	15.62
MH-57	98.00	82.28	15.72

3.4.5 Scaroni Road Wastewater Facilities

The existing Scaroni Facilities projects are pump station No. 9 (Estrada), located at State Route 111 and Cole Road; and, pump station No. 11 (Coppel), located at Weakly Road and State Route 111. The existing pump stations have a pumping capacity of 500 GPM and 600 GPM, respectively. The pumping capacity of these stations will have to be upgraded to 2,000 GPM and 2,600 GPM, respectively, to be able to provide peak pumping capacity for developments within this area which includes the 111 Calexico Place site (according Project Report Upgrade of Sewer Pump Station No. 9 and No. 11, provided by Engineering Department of City of Calexico). These two lift stations serve the area known as the benefit area named by the La Jolla Palms Subdivision Off-site Sewer Improvements Report by Dexter Wilson Engineering, Inc., September 27, 2004. The upgrade to the sewer pump stations is required to convey wastewater to the city's wastewater treatment plant.

See Figures 5 – 6



FIGURE 6



EXISTING WASTE WATER LIFT STATIONS No. 9 AND No. 11

111 CALEXICO PLACE WASTE WATER SYSTEM

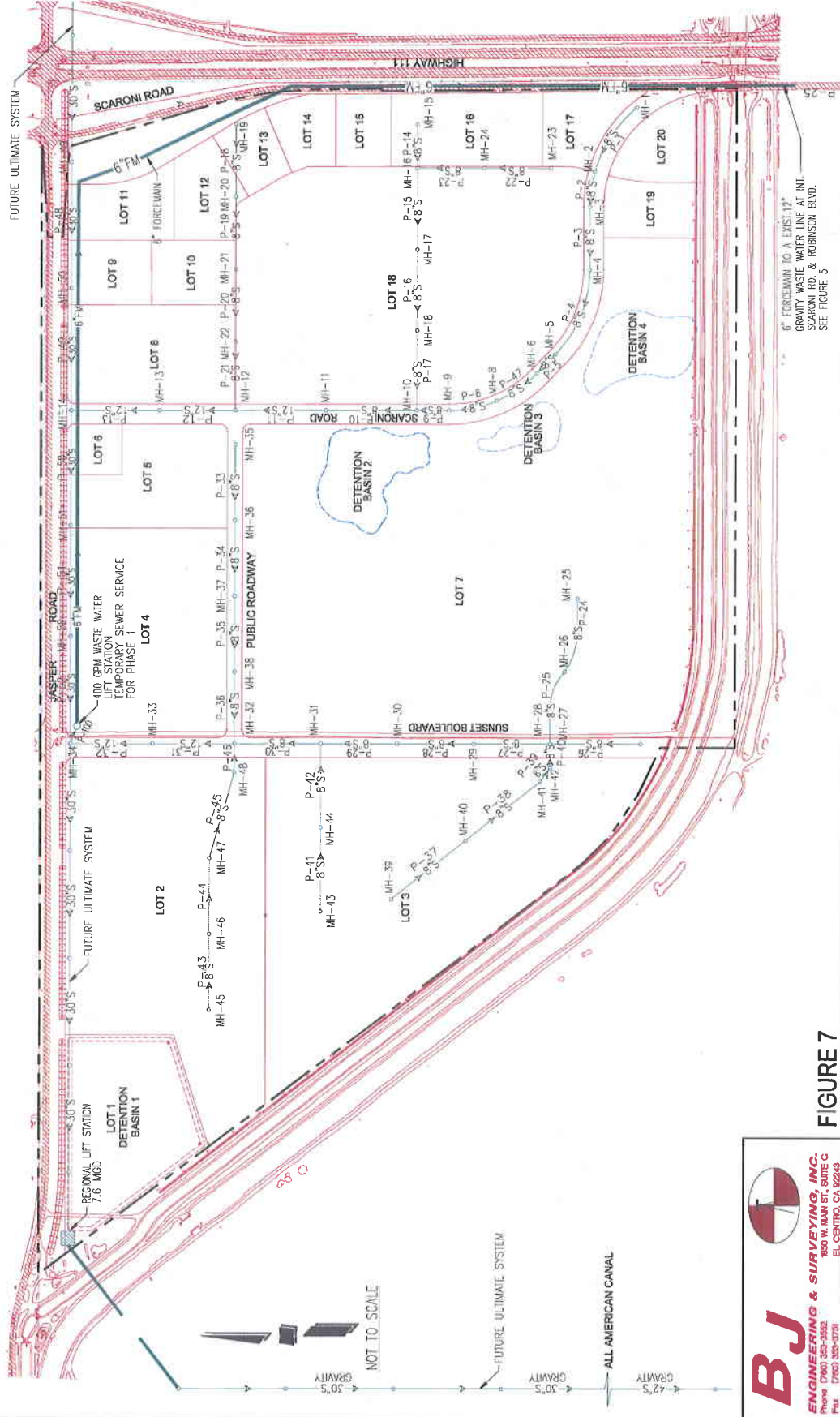


FIGURE 7

BJ
ENGINEERING & SURVEYING, INC.
 Phone (760) 353-3552
 Fax (760) 353-3728
 1850 W. MAIN ST., SUITE G
 EL CERRITO, CA 94530

4.0 Stormwater

4.1 Introduction

Currently, there is not an official stormwater control district in Imperial County. The issue of Stormwater control is local agency specific. The climate of the Imperial Valley is mild most of the year with approximately four months of very hot weather. Average annual rainfall is less than 3.”

The City of Calexico currently utilizes a combination of detention basins, open channels, and piping to convey Stormwater to Imperial Irrigation District’s drains or to the New River.

4.2 Existing Facilities

The location of 111 Calexico Place is currently an agricultural field that has been used to grow crops. There is a subsurface system of drain lines known as tile lines that will need to be cut and plugged. There are no existing city drainage facilities in this area. See Figures 7 and 8.

The City of Calexico has constructed subdivision detention basins to handle storm water runoff and regulate the flow to the Imperial Irrigation District’s canals.

4.3 Proposed Drainage System

4.3.1 Design Criteria

Detention basins will be sized by using a 3” rainfall within 24 hours and a run-off coefficient of 0.85. The detention basin needs to drain within 72 hours or provide mosquito abatement.

Inlets on streets will be provided at all low points. The minimum culvert size for storm drains will be 15” for inlet branches and 18” for mains.

Remaining hydrology design factors should be determined using Cal Trans Highway design manual.

4.4 Developed Runoff Methodology

The runoff analysis for the developed condition was performed using the Rational Method. The major basins were divided into sub-basins for each design point. The hydrological analysis utilized to determine the runoff at each design point was the Rational Method

$$Q = C I A$$

Where:

Q = Runoff (cfs)
 C = Runoff Coefficient
 I = Rainfall Intensity (in/hr)
 A = Area of Sub-basin (Ac)

Determination of Runoff Coefficient

The following runoff coefficients were used in the hydrologic analysis. Per Caltrans Table 819.2B:

Runoff Coefficients for Developed Areas

Type of Drainage Area	Runoff Coefficient
Business:	
Downtown areas	0.70 - 0.95
Neighborhood areas	0.50 - 0.70
Residential:	
Single-family areas	0.30 - 0.50
Multi-units, detached	0.40 - 0.60
Multi-units, attached	0.60 - 0.75
Suburban	0.25 - 0.40
Apartment dwelling areas	0.50 - 0.70
Industrial:	
Light areas	0.50 - 0.80
Heavy areas	0.60 - 0.90
Parks, cemeteries:	0.10 - 0.25
Playgrounds:	0.20 - 0.40
Railroad yard areas:	0.20 - 0.40
Unimproved areas:	0.10 - 0.30
Lawns:	
Sandy soil, flat, 2%	0.05 - 0.10
Sandy soil, average, 2-7%	0.10 - 0.15
Sandy soil, steep, 7%	0.15 - 0.20
Heavy soil, flat, 2%	0.13 - 0.17
Heavy soil, average, 2-7%	0.18 - 0.25
Heavy soil, steep, 7%	0.25 - 0.35
Streets:	
Asphaltic	0.70 - 0.95
Concrete	0.80 - 0.95
Brick	0.70 - 0.85
Drives and walks	0.75 - 0.85
Roofs:	0.75 - 0.95

Use of average C=0.65 for residential areas and C=0.85 for commercial areas (including streets, paved parking, building areas, etc.).

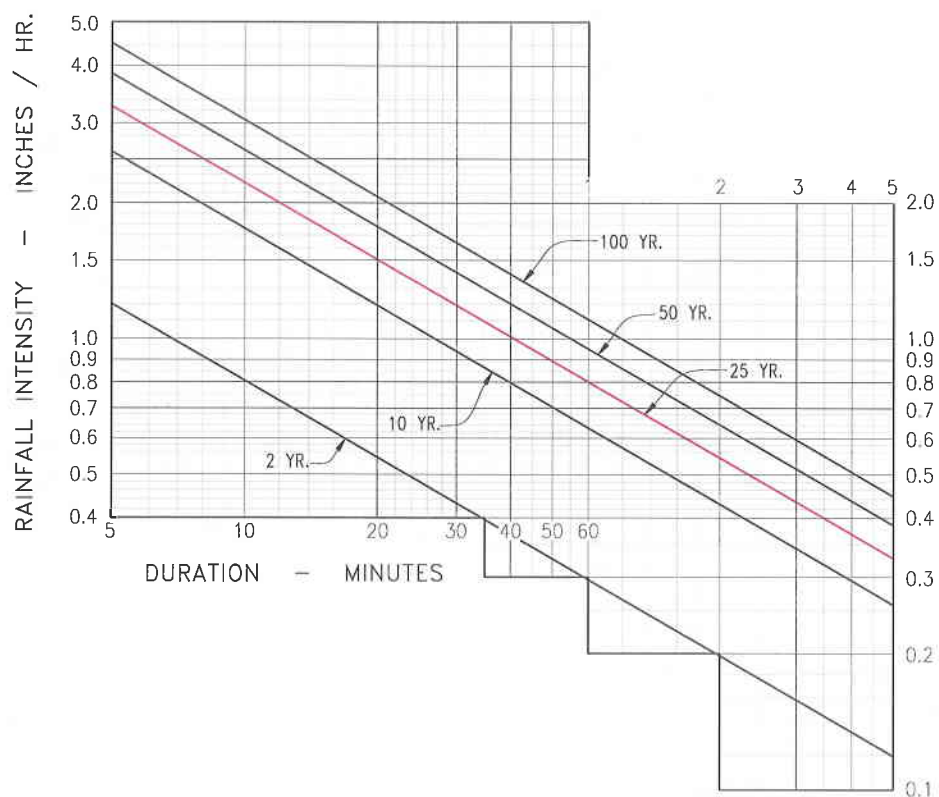
Determination of Intensity

Intensity for each sub-basin was obtained from Intensity-Duration-Frequency Chart

INTENSITY - DURATION - FREQUENCY CHART

DISTRICT 11

ZONE VI



BASED ON:

RAINFALL ANALYSIS FOR DRAINAGE DESIGN
VOLUMES I - II - III
STATE OF CALIFORNIA
DEPT. OF WATER RESOURCES
BULLETIN 195 - OCTOBER 1976

Time of Concentration

Time of concentration is the time required for storm runoff to travel from the most remote point of the drainage basin or what is known as the point of interest.

The time of concentration for this study was calculated using the Kirpich equation, which is a rough approximation of overall time.

$$T_c = 0.0078 (L/S^{0.5})^{0.77}$$

Where:

T_c = Time of concentration in minutes.

L = Horizontally projected length of watershed in feet.

$S = H/L$, where H is the difference in elevation between the most remote point and the outlet point, measured in feet.

Determination of Areas

The areas of each sub-basin were determined from the hydrology map as indicated in Table 4-A.

Table 4-A
Hydrology Calculation

SUB-BASIN	LENGTH (ft)	SLOPE (%)	TC (min)	RAINFALL INTENSITY (in/hr)	AREA (acres)	C	Q (cfs)
1	597	0.30	16.36	1.69	4.72	0.85	6.780
2*	787	0.30	18.78	1.57	6.02	0.85	8.034
3	594	0.30	16.32	1.90	3.11	0.85	5.023
4	786	0.30	18.77	1.57	4.43	0.85	5.912
5	398	0.30	13.36	1.90	1.34	0.85	2.164
6*	456	0.30	14.30	1.82	0.40	0.85	0.619
7	497	0.30	14.93	1.78	2.15	0.85	3.253
8	561	0.30	15.86	1.72	2.24	0.85	3.275
9	779	0.30	18.69	1.57	4.69	0.85	6.259
10	415	0.30	13.64	1.90	0.97	0.85	1.567
11*	521	0.30	15.28	1.78	3.70	0.85	5.598
12	426	0.30	13.82	1.90	2.16	0.85	3.488
13*	904	0.30	20.13	1.50	8.72	0.85	11.118
14	629	0.30	16.79	1.69	3.84	0.85	5.516
15*	647	0.30	17.03	1.66	5.03	0.85	7.097
16	722	0.30	17.99	1.61	2.63	0.85	3.599
17	378	0.30	13.02	1.92	1.21	0.85	1.975
18	752	0.30	18.36	1.57	3.87	0.85	5.165
19	409	0.30	13.54	1.90	1.67	0.85	2.697
20	337	0.30	12.29	1.98	0.76	0.85	1.279
21*	794	0.30	18.87	1.57	7.37	0.85	9.835
22	365	0.30	12.78	1.94	0.65	0.85	1.072
23*	789	0.30	18.81	1.56	7.01	0.85	9.295
24*	807	0.30	19.02	1.56	7.45	0.85	9.879
25	576	0.30	16.07	1.72	5.06	0.85	7.398
26	362	0.30	12.75	1.94	0.85	0.85	1.402
27	387	0.30	13.18	1.90	0.92	0.85	1.486
28*	568	0.30	15.96	1.72	1.53	0.85	2.237
29	527	0.30	15.37	1.78	3.04	0.85	4.600
30	633	0.30	16.84	1.69	4.83	0.85	6.938
31	542	0.30	15.59	1.78	2.60	0.85	3.934
32	479	0.30	14.65	1.80	1.52	0.85	2.326
33	711	0.30	17.85	1.64	6.34	0.85	8.838
34	574	0.30	16.04	1.72	2.37	0.85	3.465
35	397	0.30	13.34	1.90	0.83	0.85	1.340
36	392	0.30	13.26	1.90	0.81	0.85	1.308
37	314	0.30	11.86	2.02	0.7	0.85	1.202
38*	778	0.30	18.67	1.57	3.70	0.85	4.938
39	411	0.30	13.57	1.90	2.40	0.85	3.876
40*	920	0.30	20.31	1.50	9.11	0.85	11.615
41	447	0.30	14.15	1.84	3.21	0.85	5.020
42	528	0.30	15.38	1.78	2.84	0.85	4.297
43	600	0.30	16.40	1.69	2.87	0.85	4.123
44	457	0.30	14.31	1.82	1.27	0.85	1.965
45	299	0.30	11.58	2.04	1.12	0.85	1.942
46	471	0.30	14.53	1.80	2.34	0.85	3.580
47*	510	0.30	15.12	1.78	2.51	0.85	3.798
48*	951	0.30	20.64	1.50	8.51	0.85	10.850
49	676	0.30	17.41	1.64	5.59	0.85	7.792
51	567	0.30	15.94	1.61	2.80	0.85	3.832
52	534	0.30	15.47	1.78	3.66	0.85	5.538
53*	601	0.30	16.41	1.69	3.27	0.85	4.697

* SUB BASIN WITH INITIAL TIME OF CONCENTRATION FOR LOCATION SEE FIGURE 10.

Flood Routing

The storm drainage pipes in the proposed systems were designed based on Manning's equation (see table 4-B):

$$Q=(1.486/n)*A*r^{2/3}*S^{1/2}$$

Flood Routing Method

The Rational Method was utilized to calculate peak storm water flows and route the calculated flows through the drainage system.

4.5 Hydraulic Analysis

Hydraulic analysis has been performed to confirm capacities of the pipe sizes and grades.

The storm drain pipelines have been analyzed using Manning's equation. Calculations listing the 25-year flow, pipe size and slope, velocity, depth of flow and hydraulic grade line for proposed pipes have been included in this report.

The 100-year frequency storm would be required for detention basins calculations.

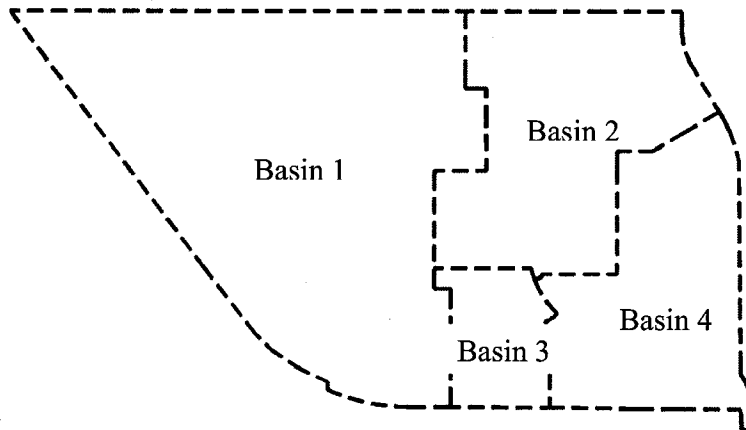
Hydraulic Grade Line

A line coinciding with the level of flowing water in an open channel, in a closed conduit flowing under pressure, the hydraulic grade line is the level to which water would rise in a vertical tube at any point along the pipe. It is equal to the energy grade line elevation minus the velocity head, $V^2/2g$.

When water is flowing through the pipe and there is a space of air between the top of the water and the inside of the pipe, the pipe is considered an open channel flow and the hydraulic grade line is at the water surface. When the pipe is flowing full under pressure flow, the hydraulic grade line will be above the crown of the pipe.

Detention Basins Volume Calculations

For the present storm drainage solution the site was divided in four main basins, their runoffs will be caught in their corresponding detention basin.



In order to know the required volume for the detention basins was used the following mathematical expression, $V = C I A$

Where:

V = Required Storage Volume (cf)

C = 1

I = 3 in/hr = $3/12 = .25$

A = Area of Basin in sf.

Basin 1

$$A = 4'587,468 \text{ sf}$$

$$V = (1) (.25) (4'587,468)$$

$$V = \underline{1'146,867 \text{ cf}}$$

Basin 3

$$A = 546,052 \text{ sf}$$

$$V = (1) (.25) (546,052)$$

$$V = \underline{136,513 \text{ cf}}$$

Basin 2

$$A = 2'034,173 \text{ sf}$$

$$V = (1) (.25) (2'034,173)$$

$$V = \underline{508,543 \text{ cf}}$$

Basin 4

$$A = 1'708,475 \text{ sf}$$

$$V = (1) (.25) (1'708,475)$$

$$V = \underline{427,119 \text{ cf}}$$

Detention Capacity:

Side slope for Detention Basin is considered with a ratio of 4:1

Proposed Detention Basins (See Figure 9)

Detention Basin 1

$$V1 = (314,605 + 270,042) (5) / 2$$

$$V1 = \underline{1,461,618 \text{ cf}}$$

Detention Basin 3

$$V1 = (35,826 + 19,256) (5) / 2$$

$$V1 = \underline{137,705 \text{ cf}}$$

Detention Basin 2

$$V1 = (116,528 + 88,490) (5) / 2$$

$$V1 = \underline{512,545 \text{ cf}}$$

Detention Basin 4

$$V1 = (100,518 + 75,882) (5) / 2$$

$$V1 = \underline{441,000 \text{ cf}}$$

VBasins are greater than VRainfall, which is acceptable

4.6 Backbone System

The proposed storm system includes a number of pipe sizes from 15" up to 42" as shown in Figures 7 and 8; and Table 4-B. 111 Calexico Place will have three detention basins – one of which is on Lot 1 and two of which will be located on Lot 7. The detention basin located on Lot 1 will have a capacity of 1,986,690 cubic feet. The detention basins on Lot 7 will have the capacities of 798,120 cubic feet and 99,495 cubic feet. The detention basin will discharge to Strout Drain within 72 hours as specified by City of Calexico and Imperial County standards to provide mosquito abatement.

111 CALEXICO PLACE PROPOSED STORM SYSTEM

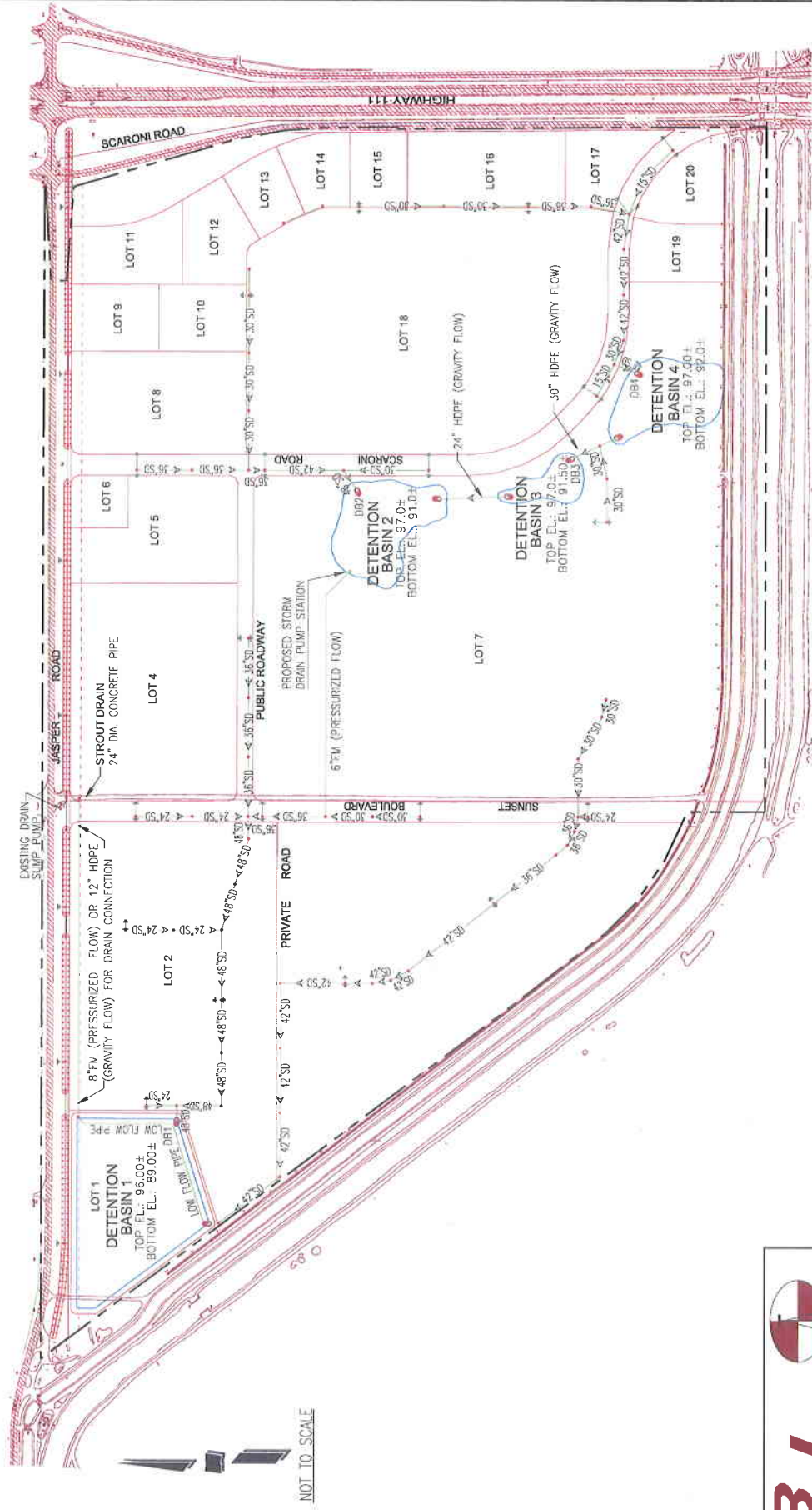


FIGURE 10



BJ
ENGINEERING & SURVEYING, INC.

1650 W. MAIN ST., SUITE G
EL CENTRO, CA 92243
Phone: (760) 353-3552
Fax: (760) 353-3751

111 CALEXICO PLACE PROPOSED STORM SYSTEM (DRAINAGE TRIBUTARY AREA)

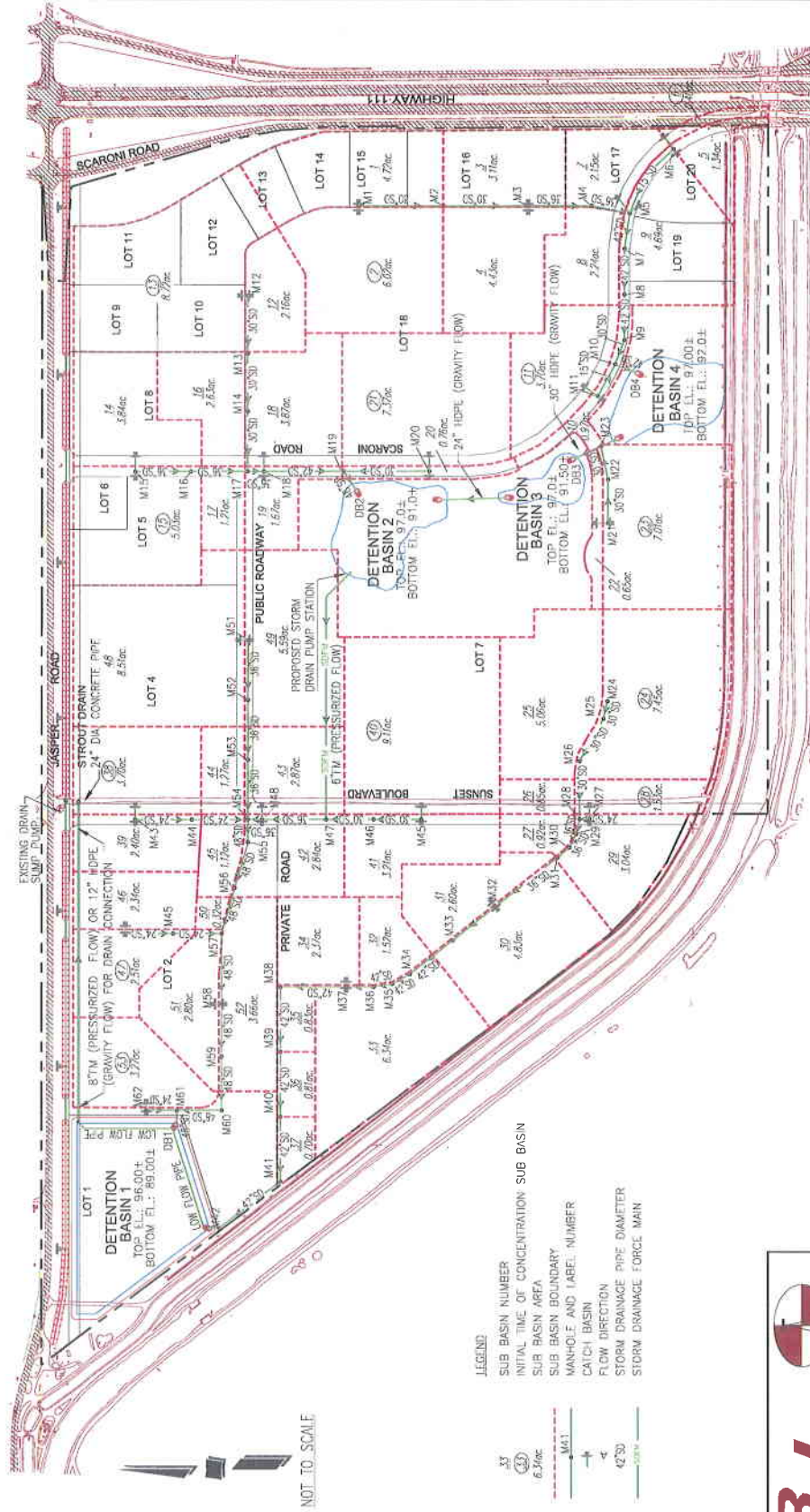


FIGURE 11

BJ
ENGINEERING & SURVEYING, INC.
 Phone (760) 353-3523
 Fax (760) 353-3751
 1850 W. MAIN ST., SUITE G
 EL CENTRO, CA 92243

NOTE: SEE TABLE 4-A FOR TIME OF CONCENTRATION CALCULATION.

Table 4-B

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
FROM MH	TO MH	SUB BASIN	INC AREA (ac)	C	AXC	ACCUM. (ac)	t _c (MIN)	RAIN FALL INTENSITY (in/hr)	Q _p (cfs)	DIAM. (in)	L (ft)	SLOPE %	V	Q _{max} (cfs)	TIME IN PIPE (min)	ACUM TIME (min)	Q _p /Q _{max}
1	2	1, 2*	10.74	0.85	9.13	9.13	18.78	1.57	14.33	30.0	323	0.10	3.44	16.91	1.6	20.34	0.85
2	3		10.74	0.85	9.13	9.13	20.34	1.49	13.60	30.0	323	0.10	3.44	16.91	1.6	21.90	0.80
3	4	1, 2, 3, 4	18.28	0.85	15.54	15.54	21.90	1.43	22.22	36.0	240	0.10	3.89	27.49	1.0	22.93	0.81
4	5		18.28	0.85	15.54	15.54	22.93	1.40	21.75	36.0	148	0.10	3.89	27.49	0.6	23.57	0.79
6	5	5, 6*	3.58	0.85	3.04	3.04	14.30	1.82	5.54	24.0	300	0.10	2.97	9.33	1.7	15.98	0.59
5	7	1, 2, 3, 4, 5, 6, 7, 8, 9	32.23	0.85	27.40	27.40	23.57	1.37	37.53	42.0	136	0.10	4.31	41.47	0.5	24.09	0.91
7	8		32.23	0.85	27.40	27.40	24.09	1.35	36.98	42.0	174	0.10	4.31	41.47	0.7	24.76	0.89
8	9		32.23	0.85	27.40	27.40	24.76	1.32	36.16	42.0	174	0.10	4.31	41.47	0.7	25.44	0.87
9	10		32.23	0.85	27.40	27.40	25.44	1.30	35.61	42.0	290	0.10	4.31	41.47	1.1	26.56	0.86
11	10	10, 11*	4.67	0.85	3.97	3.97	15.28	1.78	7.07	24.0	138	0.10	2.97	9.33	0.8	16.06	0.76
10	DB4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	36.90	0.85	31.37	31.37	26.56	1.27	39.83	42.0	290	0.10	4.31	41.47	1.1	27.68	0.96
12	13	12, 13*	10.88	0.85	9.25	9.25	20.13	1.50	13.87	30.0	220	0.10	3.44	16.91	1.1	21.19	0.82
13	14		10.88	0.85	9.25	9.25	21.19	1.46	13.50	30.0	220	0.10	3.44	16.91	1.1	22.26	0.80
14	17		10.88	0.85	9.25	9.25	22.26	1.42	13.13	30.0	227	0.10	3.44	16.91	1.1	23.36	0.78
15	16	14, 15*	12.35	0.85	10.50	10.50	17.03	1.66	17.43	36.0	210	0.10	3.89	27.49	0.9	17.93	0.63
16	17		12.35	0.85	10.50	10.50	17.93	1.61	16.93	36.0	216	0.10	3.89	27.49	0.9	18.85	0.62
17	18	12, 13, 14, 15	23.23	0.85	19.75	19.75	23.36	1.38	27.25	36.0	62	0.10	3.89	27.49	0.3	23.62	0.99
18	19	12, 13, 14, 15, 16, 17, 18, 19	32.61	0.85	27.72	27.72	23.62	1.38	38.25	42.0	300	0.10	4.31	41.47	1.2	24.78	0.92
20	19	20, 21*	8.13	0.85	6.91	6.91	18.87	1.57	10.85	30.0	326	0.10	3.44	16.91	1.6	20.44	0.64
19	DB2	12, 13, 14, 15, 16, 17, 18, 19, 20, 21	40.74	0.85	34.63	34.63	24.78	1.34	46.40	48.0	81	0.10	4.71	59.21	0.3	25.07	0.78
21	22	22, 23*	7.66	0.85	6.51	6.51	18.81	1.56	10.16	30.0	166	0.10	3.44	16.91	0.8	19.61	0.60
22	23		7.66	0.85	6.51	6.51	19.61	1.52	9.90	30.0	81	0.10	3.44	16.91	0.4	20.00	0.59
23	DB3		7.66	0.85	6.51	6.51	20.00	1.50	9.79	30.0	107	0.10	3.44	16.91	0.5	20.52	0.58
24	25	24*, 25	12.51	0.85	10.63	10.63	19.02	1.56	16.59	30.0	68	0.10	3.44	16.91	0.3	19.35	0.98
25	26		12.51	0.85	10.63	10.63	19.35	1.54	16.38	30.0	183	0.10	3.44	16.91	0.9	20.24	0.97
26	28		12.51	0.85	10.63	10.63	20.24	1.50	15.95	30.0	221	0.10	3.44	16.91	1.1	21.30	0.94
27	28	26, 27, 28*, 29	6.34	0.85	5.39	5.39	15.96	1.72	9.27	24.0	37	0.10	2.97	9.33	0.2	16.16	0.99
28	29	24, 25, 26, 27, 28, 29	18.85	0.85	16.02	16.02	21.30	1.46	23.39	36.0	58	0.15	4.76	33.67	0.2	21.51	0.69
29	30		18.85	0.85	16.02	16.02	21.51	1.45	23.23	36.0	61	0.10	3.89	27.49	0.3	21.77	0.85
30	31		18.85	0.85	16.02	16.02	21.77	1.44	23.07	36.0	177	0.10	3.89	27.49	0.8	22.53	0.84
31	32		18.85	0.85	16.02	16.02	22.53	1.41	22.59	36.0	177	0.10	3.89	27.49	0.8	23.29	0.82
32	33	24, 25, 26, 27, 28, 29, 30, 31	26.28	0.85	22.34	22.34	23.29	1.38	30.83	42.0	207	0.10	4.31	41.47	0.8	24.09	0.74
33	34		26.28	0.85	22.34	22.34	24.09	1.35	30.16	42.0	207	0.10	4.31	41.47	0.8	24.89	0.73
34	35		26.28	0.85	22.34	22.34	24.89	1.33	29.71	42.0	77	0.10	4.31	41.47	0.3	25.19	0.72
35	36		26.28	0.85	22.34	22.34	25.19	1.32	29.49	42.0	71	0.10	4.31	41.47	0.3	25.46	0.71
36	37		26.28	0.85	22.34	22.34	25.46	1.30	29.04	42.0	149	0.10	4.31	41.47	0.6	26.04	0.70
37	38	24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34	36.51	0.85	31.03	31.03	26.04	1.29	40.03	42.0	202	0.10	4.31	41.47	0.8	26.82	0.97
38	39		36.51	0.85	31.03	31.03	26.82	1.27	39.41	42.0	247	0.10	4.31	41.47	1.0	27.77	0.95
39	40	24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35	37.34	0.85	31.74	31.74	27.77	1.24	39.36	42.0	247	0.10	4.31	41.47	1.0	28.73	0.95
40	41	24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	38.14	0.85	32.42	32.42	28.73	1.22	39.55	42.0	247	0.10	4.31	41.47	1.0	29.68	0.95
41	42	24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37	38.84	0.85	33.01	33.01	29.68	1.19	39.29	42.0	247	0.10	4.31	41.47	1.0	30.63	0.95
42	DB1		38.84	0.85	33.01	33.01	30.63	1.15	37.97	42.0	50	0.10	4.31	41.47	0.2	30.83	0.92

* SUB BASIN WITH INITIAL TIME OF CONCENTRATION.
FOR CALCULATION AND LOCATION, SEE TABLE 4-A AND FIGURE 11 RESPECTIVELY

Table 4-B

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
FROM MH	TO MH	SUB BASIN	INC AREA (ac)	C	AXC	ACCUM. (ac)	tc (MIN)	RAIN FALL INTENSITY (in/hr)	Qp (cfs)	DIAM. (in)	L (ft)	SLOPE %	V	Qmax (cfs)	TIME IN PIPE (min)	ACUM TIME (min)	Qp/Qmax
43	44	38*, 39	6.10	0.85	5.19	5.19	18.67	1.57	8.14	24.0	215	0.10	2.97	9.33	1.2	19.88	0.87
44	54		6.10	0.85	5.19	5.19	19.88	1.52	7.88	24.0	213	0.10	2.97	9.33	1.2	21.08	0.85
45	46	40*, 41	12.32	0.85	10.47	10.47	20.31	1.50	15.71	30.0	181	0.10	3.44	16.91	0.9	21.18	0.93
46	47		12.32	0.85	10.47	10.47	21.18	1.46	15.29	30.0	180	0.10	3.44	16.91	0.9	22.05	0.90
47	48	40, 41, 42, 43, 44, 45	20.42	0.85	17.36	17.36	22.05	1.43	24.82	36.0	241	0.10	3.89	27.49	1.0	23.09	0.90
48	54		20.42	0.85	17.36	17.36	23.09	1.40	24.30	36.0	55	0.10	3.89	27.49	0.2	23.32	0.88
49	50	46, 47*	4.85	0.85	4.12	4.12	15.12	1.78	7.34	24.0	187	0.10	2.97	9.33	1.1	16.17	0.79
50	57		4.85	0.85	4.12	4.12	16.17	1.70	7.01	24.0	185	0.10	2.97	9.33	1.0	17.21	0.75
51	52	48*, 49	14.10	0.85	11.99	11.99	20.64	1.48	17.74	36.0	187	0.10	3.89	27.49	0.8	21.45	0.65
52	53		14.10	0.85	11.99	11.99	21.45	1.45	17.38	36.0	187	0.10	3.89	27.49	0.8	22.25	0.63
53	54		14.10	0.85	11.99	11.99	22.25	1.42	17.02	36.0	187	0.10	3.89	27.49	0.8	23.05	0.62
54	55	38, 39, 40, 40, 41, 42, 43, 44, 45, 48, 49	40.62	0.85	34.53	34.53	23.05	1.40	48.34	48.0	86	0.10	4.71	59.21	0.3	23.36	0.82
55	56		40.62	0.85	34.53	34.53	23.36	1.38	47.65	48.0	180	0.10	4.71	59.21	0.6	24.00	0.80
56	57		40.62	0.85	34.53	34.53	24.00	1.36	46.96	48.0	180	0.10	4.71	59.21	0.6	24.63	0.79
57	58	38, 39, 40, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49	45.47	0.85	38.65	38.65	24.63	1.34	51.79	48.0	267	0.10	4.71	59.21	0.9	25.58	0.87
58	59	38,39,40,40,41,42,43,44,45, 46,47,48,49,50,51,52	52.25	0.85	44.41	44.41	25.58	1.31	58.18	48.0	200	0.10	4.71	59.21	0.7	26.28	0.98
59	60		52.25	0.85	44.41	44.41	26.28	1.29	57.29	48.0	203	0.10	4.71	59.21	0.7	27.00	0.97
60	61		52.25	0.85	44.41	44.41	27.00	1.27	56.40	48.0	170	0.10	4.71	59.21	0.6	27.61	0.95
62	61	53*	3.27	0.85	2.78	2.78	16.41	1.68	4.67	24.0	115	0.10	2.97	9.33	0.6	17.06	0.50
61	CB4	38, 39, 40, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52	55.52	0.85	47.19	47.19	27.61	1.25	58.99	48.0	115	0.10	4.71	59.21	0.4	28.01	1.00

* SUB BASIN WITH INITIAL TIME OF CONCENTRATION.
FOR CALCULATION AND LOCATION, SEE TABLE 4-A AND FIGURE 11 RESPECTIVELY

5.0 Conclusions and Recommendations

5.1 Water System

With the installation of the 24" and 12" pipes along with the two points of connection as well the 8" pipe lines internal network, the city can provide water to all three phases of 111 Calexico Place to meet maximum daily demand plus fire flow to meet residual pressure of 20 psi. (See figure 2 and 3). The Developer will cover the fair share fee for the required improvements.

5.2 Wastewater

With the installation of a 400 GPM lift station, a 6" force-main to the existing 12" stub-out in Scaroni, along with the replacement or upgrade of lift stations 9 and 11, the City of Calexico can provide wastewater services to all three phases of 111 Calexico Place on a temporary base. The ultimate system will be hooked up when the Benefit Assessment District is formed and its construction of the master plan system is built. The Developer will cover the fair share fee for the required improvements.

5.3 Storm water

With the construction of the 4 detention basins sized to hold Storm water and discharged within 72 hours, the flooding of 111 Calexico Place will be controlled. The existing tile lines will need to be plugged.

The detention basins shall be designed with low flow pipe connections, landscape and irrigation system in accordance with the City of Calexico Standards

5.4 Utility Phasing Plan

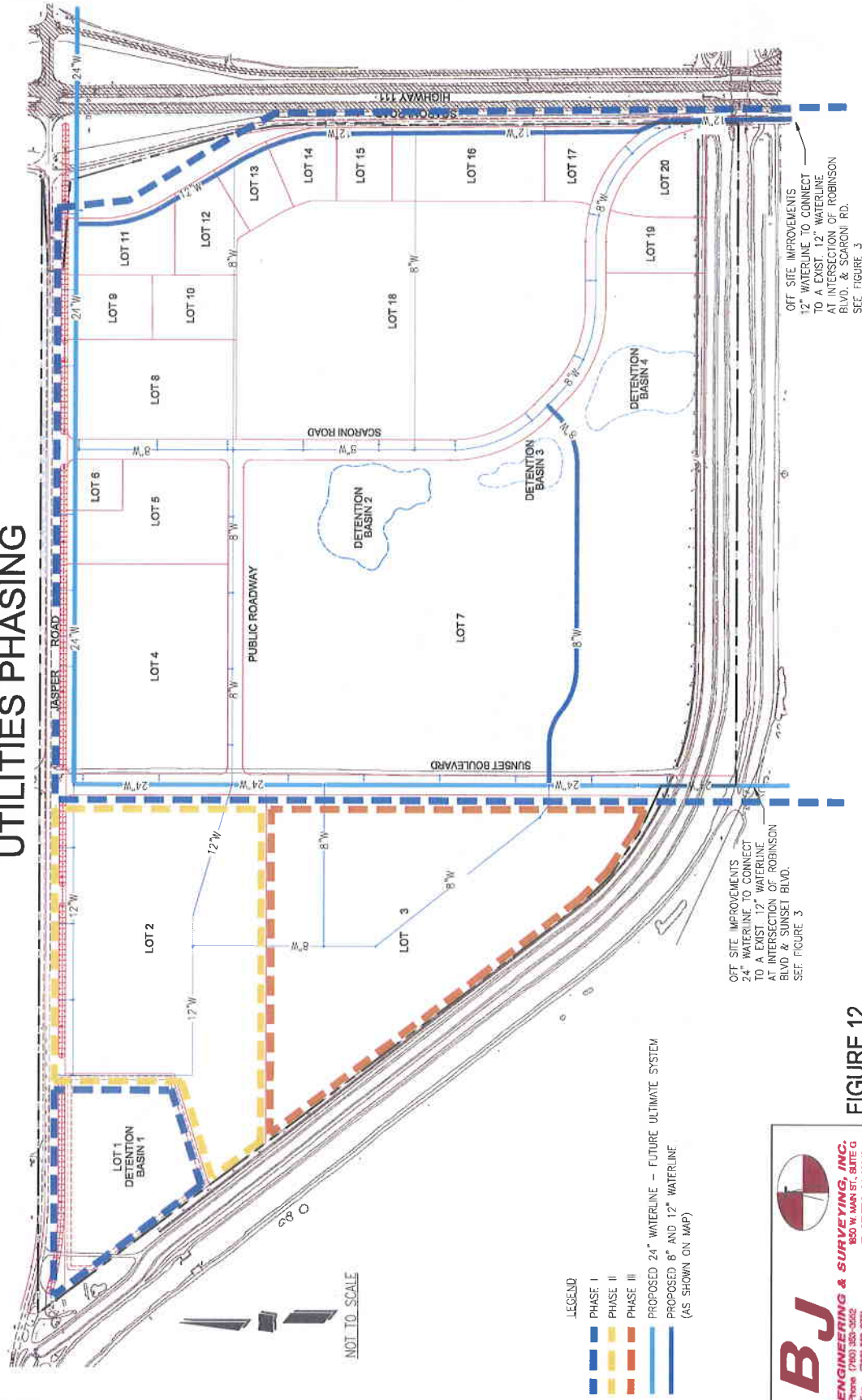
According to what has been previously indicated, the development of the 111 Calexico Place Project will take place in five phases, which are explained in table 1-A. The utilities are to be constructed in three phases (See table 5-A, and Figures 11, 12 and 13).

Basically the 111 Calexico Place Project will be responsible of the improvements, with exception of those that are required by Service plan Area of the City of Calexico (which have been previously itemized in the water and wastewater contents of this study) and those where third parties will be benefit with, in these particular cases the developer will cover the fair share fee of the improvements.

Table 5-A Utilities Phasing for 111 Callexico Place Development.

PHASE	IMPROVEMENTS DESCRIPTION
I	<p><u>WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 24" LINE ON SUNSET BLVD. ▪ 24" LINE NEXT TO JASPER RD. ▪ 12" LINE LOCATED AT THE EAST SIDE OF THE PROPERTY. ▪ 8" LINES ON PUBLIC AND PRIVATE ROADS WITHIN THIS PHASE. <p><u>WATER OFF SITE.</u></p> <ul style="list-style-type: none"> ▪ 24" AND 12" LINES THAT WILL CONNECT WITH THE EXISTING INFRASTRUCTURE ON THE INTERSECTION OF ROBINSON BLVD. AND SUNSET BLVD. AND SCARONI RD. RESPECTIVELY. <p><u>WASTE WATER IN SITE.</u></p> <ul style="list-style-type: none"> ▪ ALL THE 8" AND 12" LINES PROPOSED ON SUNSET BLVD. ▪ ALL THE 8" AND 12" LINES PROPOSED ON THE EAST SIDE OF SUNSET BLVD. ▪ THE 400 GPM LIFT STATION FOR TRMPORARY USE. ▪ THE 6" FORCE MAIN FOR TEMPORARY USE. <p><u>STORM DRAIN.</u></p> <p>THE MOST PART OF THE IMPROVEMENTS ARE REQUIRED IN THIS PHASE SINCE THE STORM WATER COLLECTION STARTS WHERE IS LOCATED THE PHASE I AND FINALLY IS DIRECTED TO THE DETENTION BASIN THAT IS LOCATED ON THE NORTHWEST CORNER OF THE PROPERTY, PASSING THROUGH THE PHASE II AND PHASE III.</p> <ul style="list-style-type: none"> ▪ FOUR DETENTION BASIN. ▪ 6" FORCE MAIN IN THE CASINO AREA. ▪ 6" FORCE MAIN OR 12" GRAVITY LINE THAT WILL DISCHARGE IN THE STROUT DRAIN. ▪ ALL THE 15, 24, 30, 36, 42 AND 48" LINES PROPOSED (WITH EXCEMPTION OF THOSE INDICATED IN PHASE II AND PHASE III).
II	<p><u>WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 12" LINE LOCATED NEXT TO JASPER RD. ▪ 8 AND 12" LINES LOCATED AT THE WEST SIDE OF SUNSET BLVD. WITHIN THIS PHASE. <p><u>WASTE WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 8" LINES LOCATED ON THE PRIVATE ROAD AT THE WEST SIDE OF SUNSET BLVD. WITHIN THIS PHASE. <p><u>STORM DRAIN.</u></p> <ul style="list-style-type: none"> ▪ 24" LINES LOCATED IN THE PRIVATE ROADS AT THE WEST SIDE OF SUNSET BLVD. WITHIN THIS PHASE.
III	<p><u>WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 8" LINES LOCATED AT THE WEST SIDE OF SUNSET BLVD. WITHIN THIS PHASE. <p><u>WASTE WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 8" LINES LOCATED ON THE PRIVATE ROAD AT THE WEST SIDE OF SUNSET BLVD. WITHIN THIS PHASE.

111 CALEXICO PLACE BACKBONE WATER LINES UTILITIES PHASING



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111 CALEXICO PLACE WASTE WATER SYSTEM UTILITIES PHASING

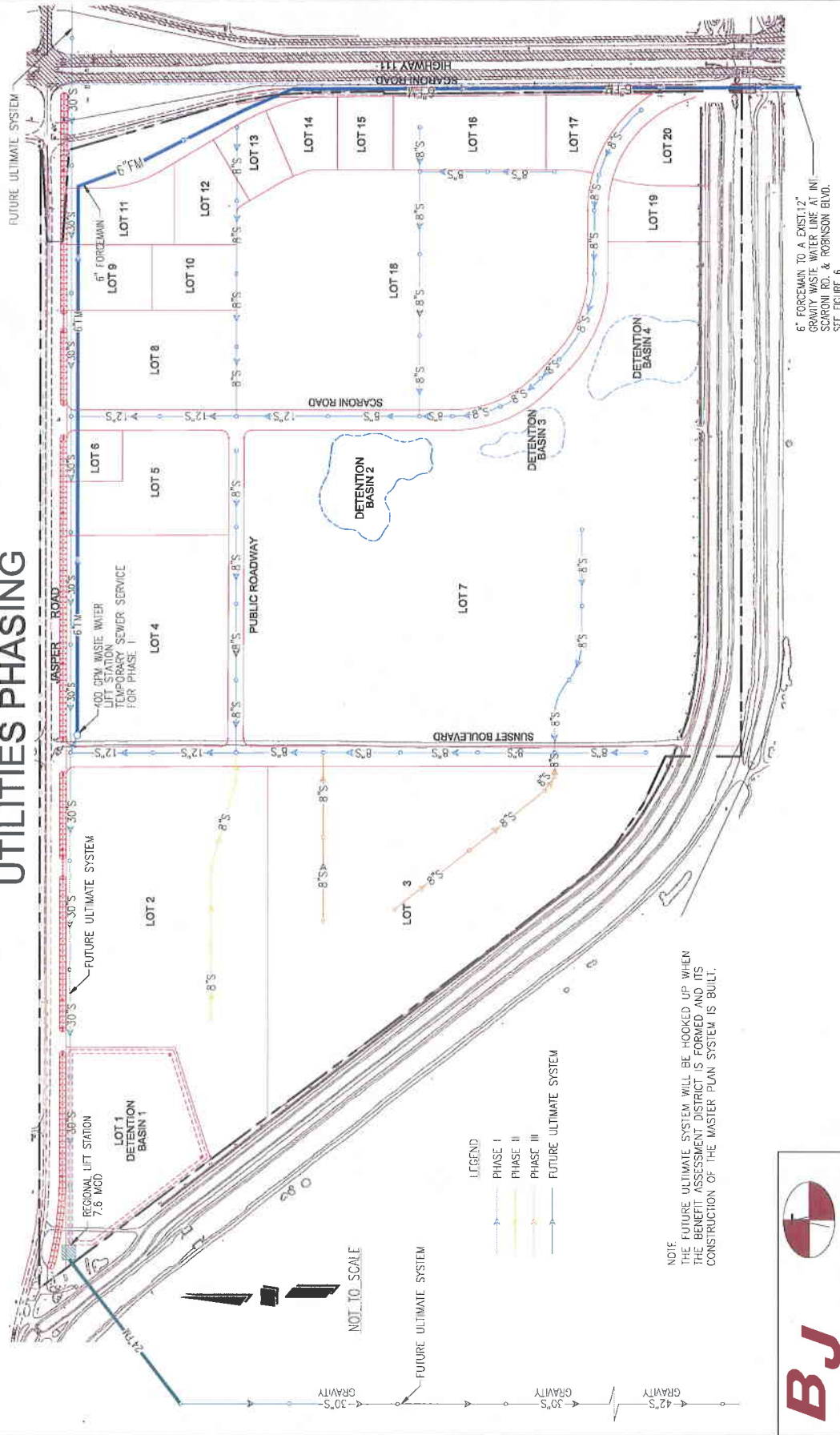


FIGURE 13

5.5 Utility Phasing Plan for Casino Resort Complex.

Table 5-B shows the required improvements for the Casino Resort Complex.

PHASE	IMPROVEMENTS DESCRIPTION
Casino complex	<p><u>WATER ON SITE.</u></p> <ul style="list-style-type: none"> ▪ 24" LINE ON SUNSET BLVD. ▪ 24" LINE NEXT TO JASPER RD. ▪ 12" LINE LOCATED AT THE EAST SIDE OF THE PROPERTY. ▪ 8" LINES ON PUBLIC AND PRIVATE ROADS WITHIN THIS PHASE.(only those located between Scaroni Road and Sunset Boulevard) ▪ (Any preparation that must be leaved out of the proposed paved area for future Phases connections). <p><u>WATER OFF SITE.</u></p> <ul style="list-style-type: none"> ▪ 24" AND 12" LINES THAT WILL CONNECT WITH THE EXISTING INFRASTRUCTURE ON THE INTERSECTION OF ROBINSON BLVD. AND SUNSET BLVD. AND SCARONI RD. RESPECTIVELY. <p><u>WASTE WATER IN SITE.</u></p> <ul style="list-style-type: none"> ▪ ALL THE 8" AND 12" LINES PROPOSED ON SUNSET BLVD. ▪ ALL THE 8" AND 12" LINES PROPOSED ON SCARONI ROAD. ▪ ALL THE 8" AND 12" LINES PROPOSED BETWEEN SCARONI ROAD AND SUNSET BOULEVARD. ▪ THE 400 GPM LIFT STATION FOR TRMPORARY USE. ▪ THE 6" FORCE MAIN FOR TEMPORARY USE. ▪ (Any preparation that must be leaved out of the proposed paved area for future Phases connections). <p><u>STORM DRAIN.</u></p> <p>THE MOST PART OF THE IMPROVEMENTS ARE REQUIRED IN THIS PHASE SINCE THE STORM WATER COLLECTION STARTS WHERE IS LOCATED THE PHASE I AND FINALLY IS DIRECTED TO THE DETENTION BASIN THAT IS LOCATED ON THE NORTHWEST CORNER OF THE PROPERTY, PASSING THROUGH THE PHASE II AND PHASE III.</p> <ul style="list-style-type: none"> ▪ FOUR DETENTION BASIN. ▪ 6" FORCE MAIN IN THE CASINO AREA. ▪ 6" FORCE MAIN OR 12" GRAVITY LINE THAT WILL DISCHARGE IN THE STROUT DRAIN. ▪ ALL THE 15, 24, 30, 36, 42 AND 48" LINES PROPOSED (WITH EXCEMPTION OF THOSE INDICATED AT THE EAST SIDE OF THE PROPOSED SCARONI ROAD). ▪ (Any preparation that must be leaved out of the proposed paved area for future Phases connections).